FIG. 1A

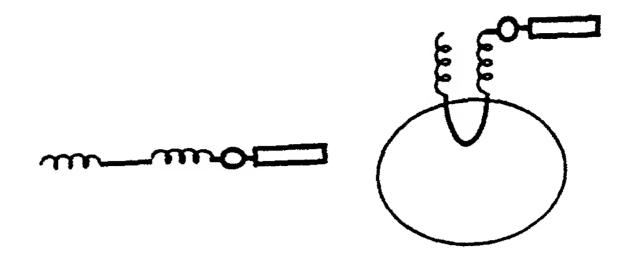


FIG. 1B

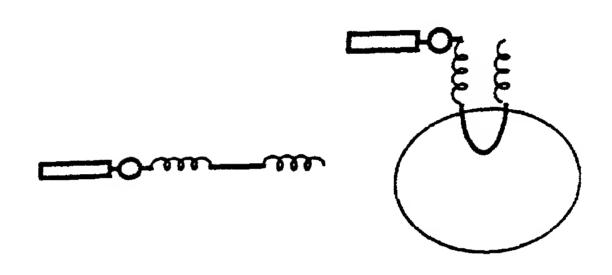


FIG. 1C

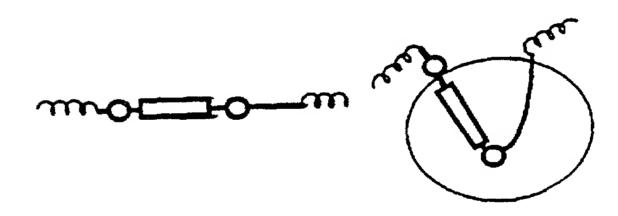
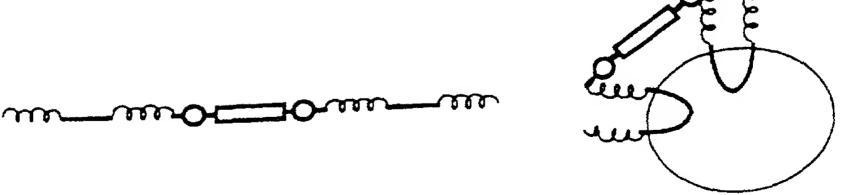


FIG. 1D



. 267	NCOI CCATGCTATACCCAACCTCGGTCTTGGTCACACCAGGAACTCTCTGGTAAGCTAGCT
.777	CGATGOCTANCE TO A CONTROL OF THE CON
c#7	CCGAATCGAGTCTGTTGAAAGGTTGTTCATTGGGATTTGTATACGGAGATTGGTCGTCGAGAGGTTTGAGGGAAAGGACAAATGGGTTTG
	CONTIGGAGAAAGAGAGTGCGGCTTTTAGAGAGAGAATTGAGAGAGA
. 07	ACCTGCATTATCAAAGCAGTGACGTGGTGAAATTTGGAACTTTTÄÄGAGGCAGATAGATTTATTATTTGTATCCATTTTCTTCATTGTTC
417	TAGAATGTCGCGGAACAAATTTTAAAACTAAATCCTAAATTTTTCTAATTTTGTTGCCAATAGTGGATATGTGGGCCGTATAGAAGGAAT
127	CTATIGAAGGCCCAAACCCAT ACTGACGAGCCCAAAGGTTCGTTTTGCGTTTTATGTTTCGGTTCGATGCCAACGCCACATTCTGAGCTA
337	GGCAAAAAACAAACGTGTCTTTGAATAGACTCCTCTCGT <u>TAACACA</u> TGCAGCGGCTGCATGGTGACGCCATTAACACGTGGCCTA <u>CAAT</u> T
	${\tt GCATGATGTCTCCATTGACACGTGACTTCTCGTCTCCTTTCTTAATATATCTAACAAACA$
-	M A D T A R G T H H D THTTGATCAATCTCTCATACAAAATCTCATTCTCTCTAGTAAACAAGAACAAAAAAATGGCGGATACAGCTAGAGGAACCCATCACGAT
34	I I G R D Q Y P M M G R D R D Q Y Q M S G R G S D Y S K S R ATCATCGGCAGAGCCAGTACCAGATGTCCGGACGAGGCTACCAAGTCTAGG
124	O I A K A A T A V T A G G S L L V L S S L T L V G T V I A L CAGATTGCTAAAGCTGCAACTGTCACAGCTGTTCCCTCCTTGTTCTCCCAGCCTTACCCTTGTTGGAACTGTCATAGCTTTG
_	T V A T P L L V I F S P I L V P A L I T V A L L I T G F L S ACTOTTGCAACACCTCTCATCACCGGTTTTCTTTCC
	S G G F G I A A I T V F S W I Y K TCTGGAGGGTTTGCCGCTATAACCGTTTTCTCTTGGATTTACAAgtaagcacacatttatcatcttacttcataattttgtgca
	atatgtgcatgcatgtgttgagccagtagctttggatcaatttttttt
	gaacatttggttaactaaatacgaaatttgacctagctag
	Y A T G E H P Q G S D K L D S A R M K L G S K tacctattgattgtgaatagGTACGCAACGGGAGACCACACGGGATCAGACAAGTTGGACAGTGCAAGGATGAAGTTGGGAAGCAAA
	A Q D L K D R A Q Y Y G Q Q H T G G E H D R D R T R G G Q H GCTCAGGATCTGAAAGACAGAGCTCAGTACTACGGACAGCAACATACTGGTGGGGAACATGACCGTGACCGTACTGGTGGCCAGCAC
	T T . ACTACITAAGTIACCCCACTGATGTCATCGTCATAGTCCAATAACTCCAATGTCGGGGAGTTAGTT
	<u>KDDI</u> TTGATCAGGGGGAGAT <u>AATAAA</u> AGCCGAGTTTGAATCTTTTTGTTATAAGTAATGTTTATGTGTGTTTCTATATGTTGTCAAATGGTACC

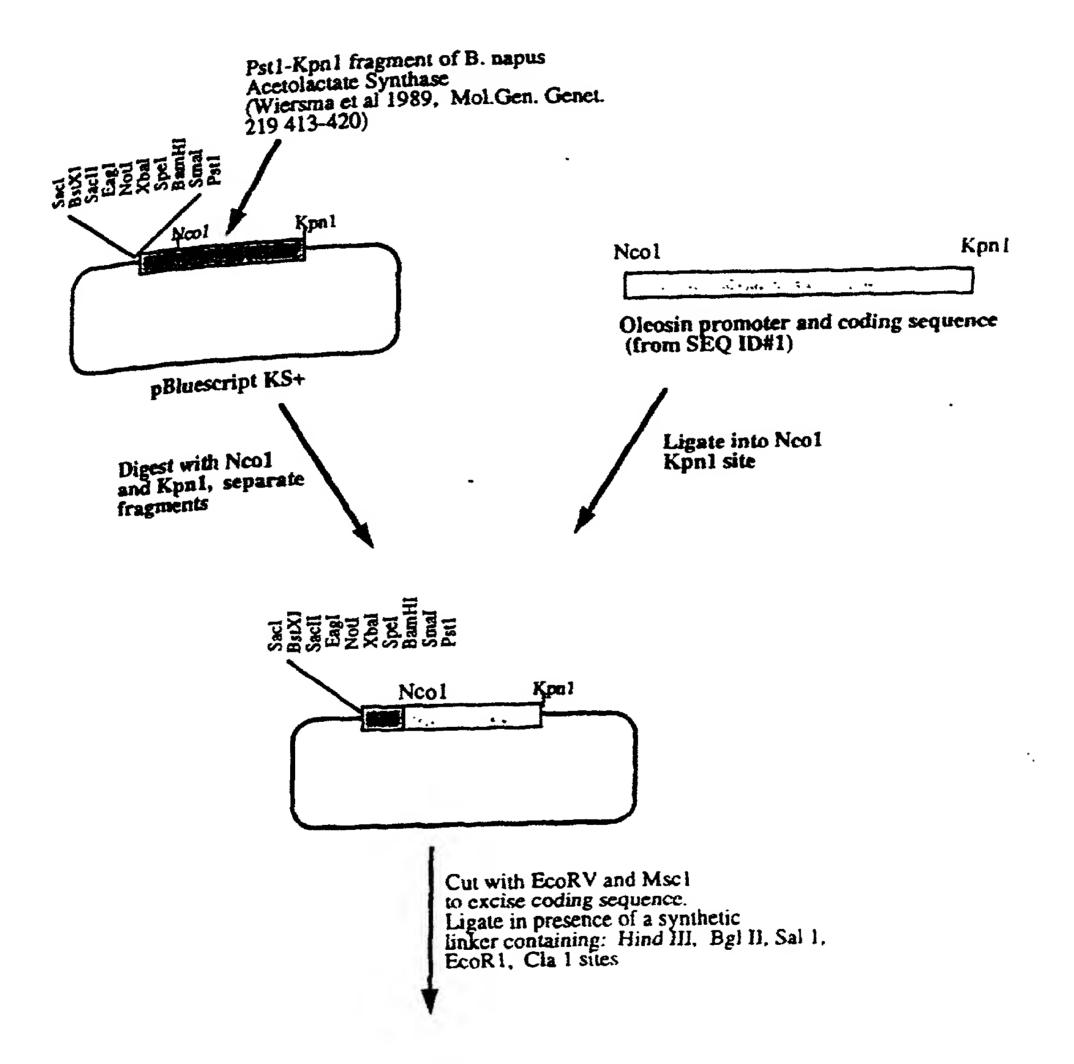
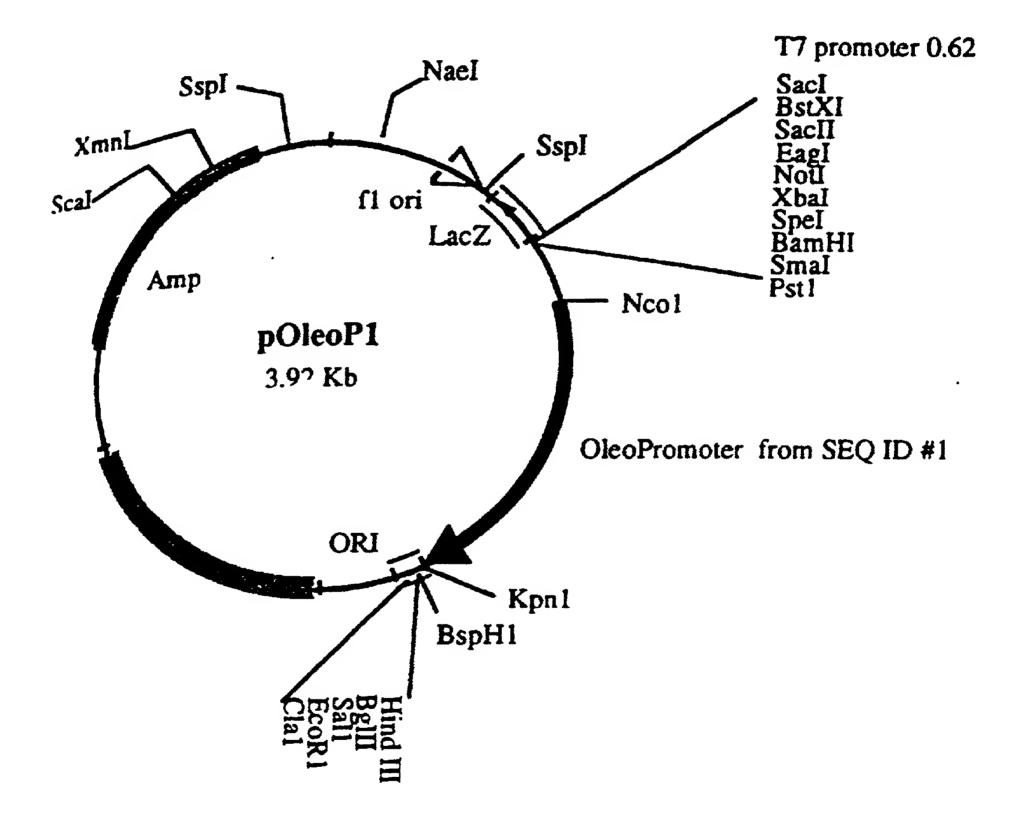
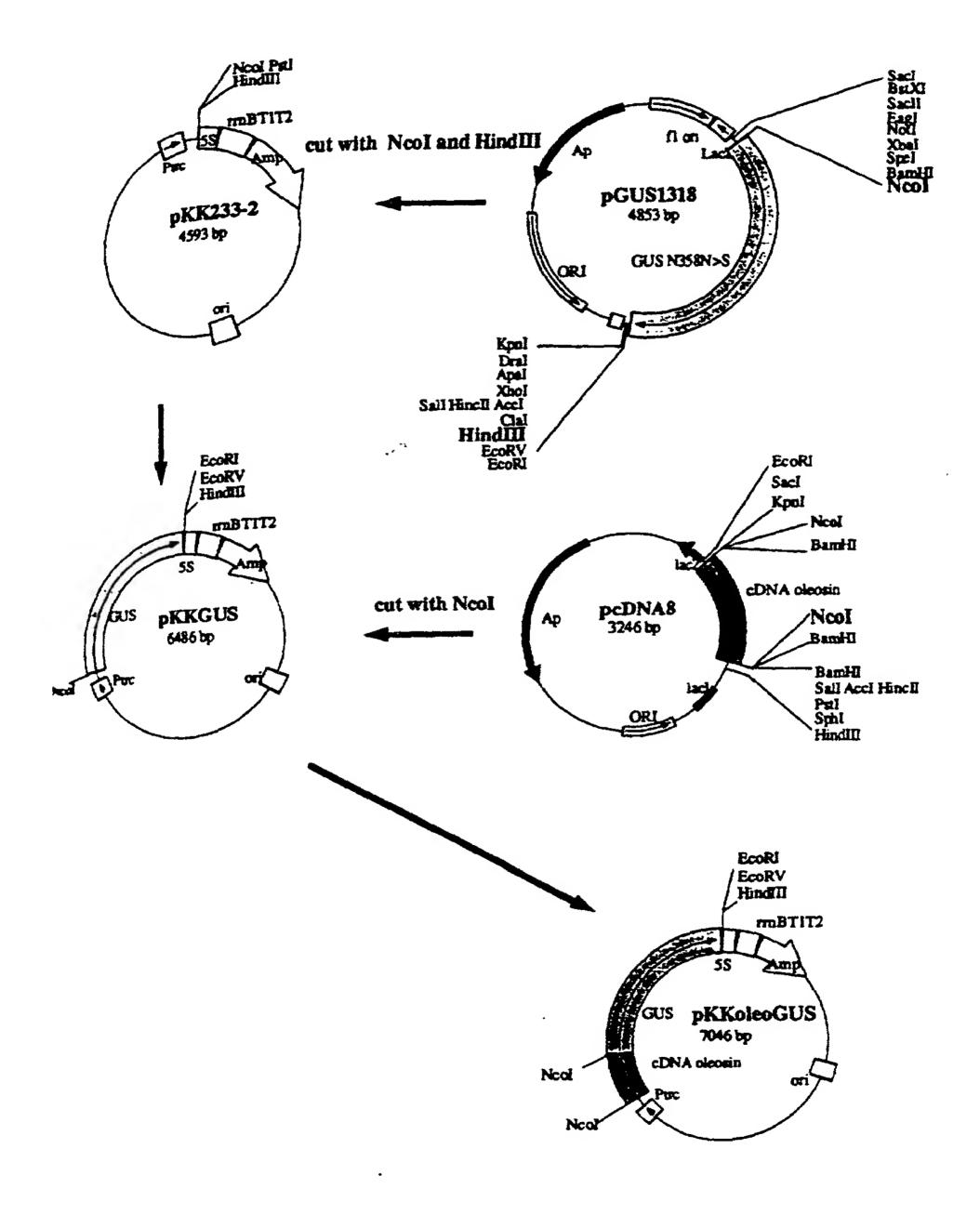


FIGURE 3 cont'd



	1 A	rc cc	G GA	T AC	A GC A	T AG	A ACC	CA1	CAC E	GAT D	v GI(T AC	A AGT	r CGA	GAT D	CAG Q	TAT Y	. ccc	CGA R	GAC D	60 20
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6	, œ	_{iA} GA	c CN	G TA	r TC	T AT(ATC	G G	CGA R	GAC D	CGT R	GAC D	CAG	TAC Y	TCT S	ATG	ATG H	GGC	CGA R	GAC D	12 40
2	R	D	Q	¥	3	44	-				••	-	W	•		••	**	•	•	D	40
12	. 00	y cy	c CM	G TAC	. AM	ATC	TAT	GGT	CGA	GAC	TAC	TCC	AAG	TCT	AGA	CAG	ATT	GCT	AAG	GCT	18
4	R	D	Q	Y	H	n	•	G	A.	D	1	5	*	\$	ĸ	Ų	1	•	K	A	60
18	GI	T AC	ද දෙ	GIC	: AC	GOG	GGT	GGG	TCC	CTC	CTT	GIC	CTC	TCC	AGT	CTC	ACC	CIT	CTT	GGT	24
		T		V	Ŧ	A	G	G	S	L	L	٧	L	S	S	L	T	L	V	G	80
241	AC.	T GT	. ATI	GCI	TTG	ACT	GTT	ecc	act	CCA	CTC	CIC	GTT	ATC	TTT	AGC	CCA	ATC	CTC	GTG	300
8 1	T	V	I	A	L	T	٧	A	T	P	L	L	V	I	P	S	P	I	L	V	100
101	œ	G GCT	CIC	ATC	ACC	GTA	GCA	CIT	CTC	ATC	act	GCC	TIT	CTC	TCC	TCT	GGT	GGG	TTT	GCC	360
01	P	λ	L	I	Ţ	٧	A	L	L	I	T	G	F	L	8	S	G	G	F	A	120
61	AT.	r GCZ	GCT	ATA	ACC	GTC	TTC	TCC	TGG	ATC	TAT	aag	TAC	GCA	ACG	GGA	GAG	CAC	CCA	CAG	420
21	1	X	A	I	T	V	f	S	W	I	¥	K	Y	A	T	G :	E	H	P	Q	140
21	αx	TCA	GAT	AAG	TIG	GAC	agt	GC)	AGG	ATG	AAG	CIG	GGA	ACC	λλλ	GCT (CAG (GAT .	ATT	AAA	480
41	G	S	D	K	L	D	S	λ	R	M	K	L	G	T	K .	λ	Q	D	I	K	160
8 1	CAC	AGA	GCT	CAA	TAC	TAC	GGA	CAG	CAA	CAT	ACA	GGT	GGT	GAG	CAT	GAC (ogt (GAC (OGT .	ACT	540
61	D	R	λ	Q	Y	Y	G	Q (Q i	Ħ	T	G	G	Ε	H i	ן ס	R i	D :	R	T	180
			GGC	CAG	CAC	ACT	ACT 1	TAA													564
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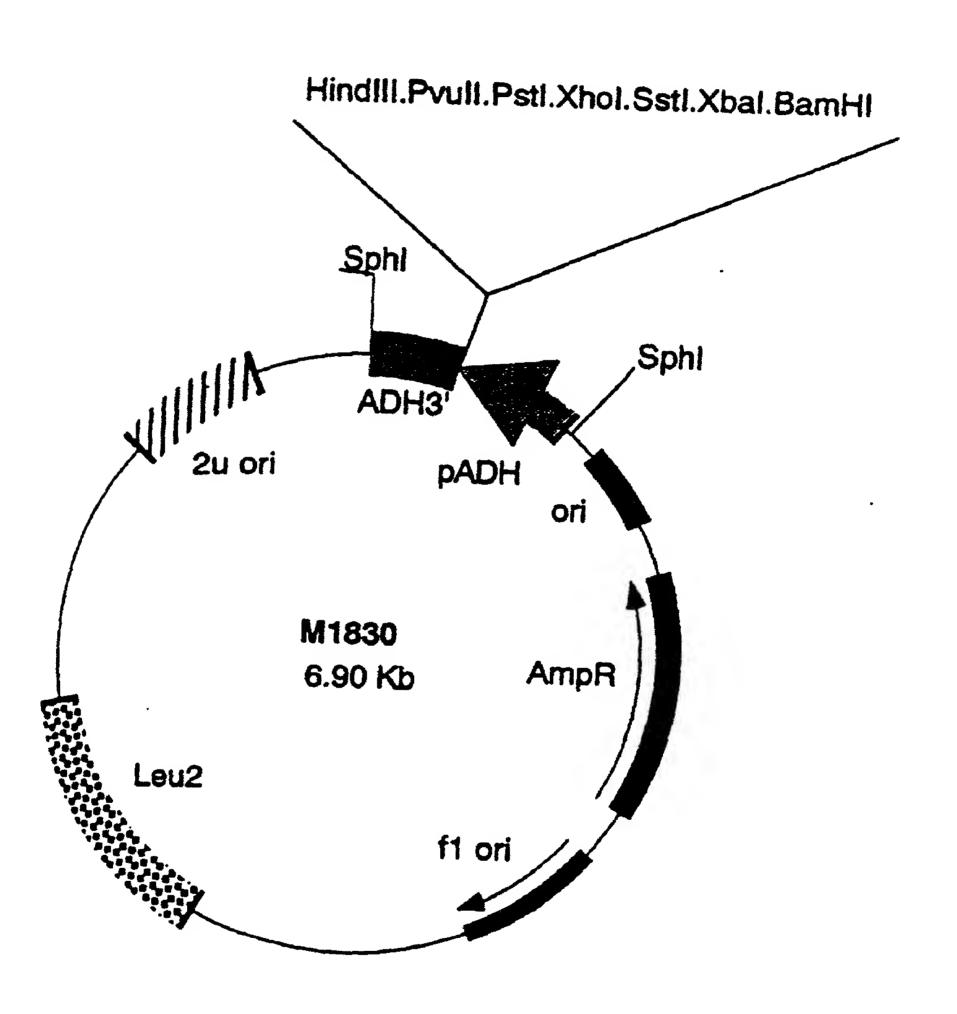


BindII	I	1 T I	AGC	TTG	CATO	CCT	GCG	GAA	CTC	TCT	GGT	AAG	CTA	GCT	CCA	CTC	CCC	AGA	AAC	AACC	60
-	7		40 A	1 1 T	TGCL	aut.	WT 7.	マレスフ			ひれび	ひしい	was	CVI		CGT	افافات			الماجات	i 120
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_	-		1/2A/	TATY	CGG	CGG	CGAT	(GAC	.GGC	iAG	iAG.	AGA	CGA	CGA	3GA(CCT	GCA?	TA.	rca.	L AGCA	360
	, -		CG	rgg?	[GAA	ATT.	rgga	VVC 3		AA.	iag(SCA	SAT	AGA:		ATT	ATT.	[GT]	\TC(CTTTAL	420
36 42		-	MAR.	TG	TCT.	AGA	ltgi	CGC	:GGA	LAC!	LAA:		<u>raaj</u>	MC.	CAA	ATC(TAZ	LAT.		CTAA	480
48			PT D	rGCC	'AAT	AGT (GAT	PIA	TGG	iGCC	:GT/	LTA	SAAC	:GA!	TC:	PATT	rga.	\GG(:CC#	LAACC	540
54		· 2 T l	CTC	ACG	:AGC	CCA	LAGG	TTC	GTT	TTG	iCG1		PATC	TT	CGG	TTC	GAI	'GCC	:AAC	:GCCA	600
60	- /	2 707	TG	AGC	TAG	GCA	AAA	ACA	AAC	GTG	TCI	CLL.	AAT	AGA	CTC	CTC	TCG	TTA	LACA	CATG	660
66		AGC	:GGC	TGC	ATG	FTGA	CGC	CAT	TAA	CAC	GTG	GCC	TAC	'AAT	TGC	ATG	ATG	TCT	CCA	TTGA	720
72		ACG	TGA	CTT	CTC	FTCT	CCT	TTC	TTA	ATA	TAT	CTA	LACA	AAC	ACT	CCT	ACC	TCT	TCC	AAAA	780
78		ATA	TAC	ACA	TCTI	TIT	GAT	CAA							ATT	CTC	TCT	AGT	AAA	CAAG	840
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		G				0	D		K			A	Q	Y	Y	G	0	0	H	T	1300
1501	TT	GGG	AAG	CAA	AGCT	CAG	GATO	TGF	AAG	ACA	AGA(GCT	_	rac:	PAC	GGA	_	-		-	1560
	G		E	H	D	R		R			G	G	Q	H	T	T		V			
1561	GGT	GGG	GAA	CAT	GACC	GTG	ACC	GTA	CTC	GTG	GTG	GCC	AGC	ACA	CTA	CTC					1620
		_ <u>s</u>			E			R	I	P		Y	K	G	K	S	L	R	K	A	
1621	GG	ATC	CATO	GC	rgag	ATC	ACC	\GG}	ATCC	CTC	CTG	TAC.	AAA	GGC	AAG:	TCT(CTG	AGG	AAG	GCG	1680
	_	K	Ē	H	G	L	_	_	_	_		Q	K	Q	Q	Y	G	I	S	S	
:681	CTO	AAG	GAG	CAT	'GGG	CTTC	TGG	AGG	ACT	TCC	TGC	AG	LAAC	AGC	AGT	'ATG	GCA	TCA	GCA	.GC	1740
	K	Y	S	G	F	G	E	V	A	S	V	P	L	T	N	Y	L	D	S	0	
.742	AAG	TAC	TCC	GGC	TTC	GGG	AGG	TGG	CCA	GCG	TGC	CCC	TGA	CCA	ACT	ACC	TGG	ATA	GTC	AG	1800

FIGURE 6 cont'd

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		_				ידעב	("I'A			AST.		عاساء			IGG	AG'	TT	CAC	:CG	TGC	TG	TT	TG!	AC	ACT	1860
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;;01		-01	~~~	AA7	TC	GAC	GGG	YIA	CCT	GGG	GA:	rGG	CC	TAC	CCC	CT	CG	CTC	CGC	CTO	AC	AG	TA	CT	CG	2160
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:16:	1		-	• ሞርጥ	- -	FAC	AAC	ATO	AT	GAA	CAC	GC	AC	CTO	GT	GG	CC	CAA	GA	CCT	\:\	بىلىر. -	ጥር (361	iodi	2220
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Title: PREPARATION OF THIOREDOXIN AND THIOREDOXIN REDUCTASE ON OIL BODIES Inventor(s): Maurice M. MOLONEY et al. DOCKET NO.: 034547-0106



Title: PREPARATION OF THIOREDOXIN AND THIOREDOXIN REDUCTASE ON OIL BODIES Inventor(s): Maurice M. MOLONEY et al. DOCKET NO.: 034547-0106

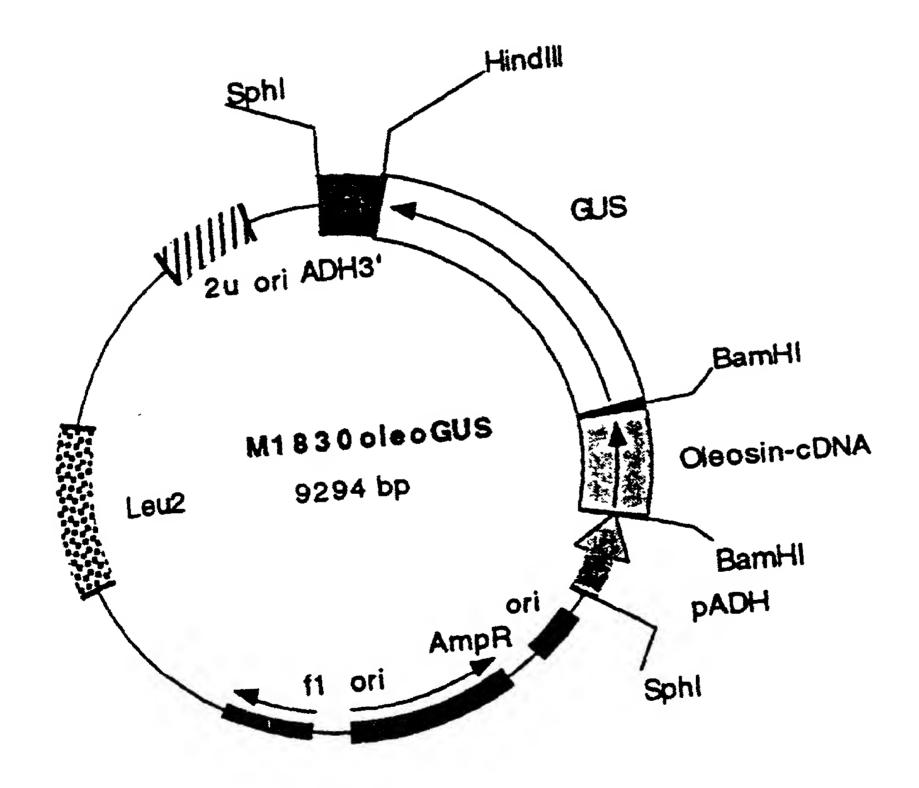
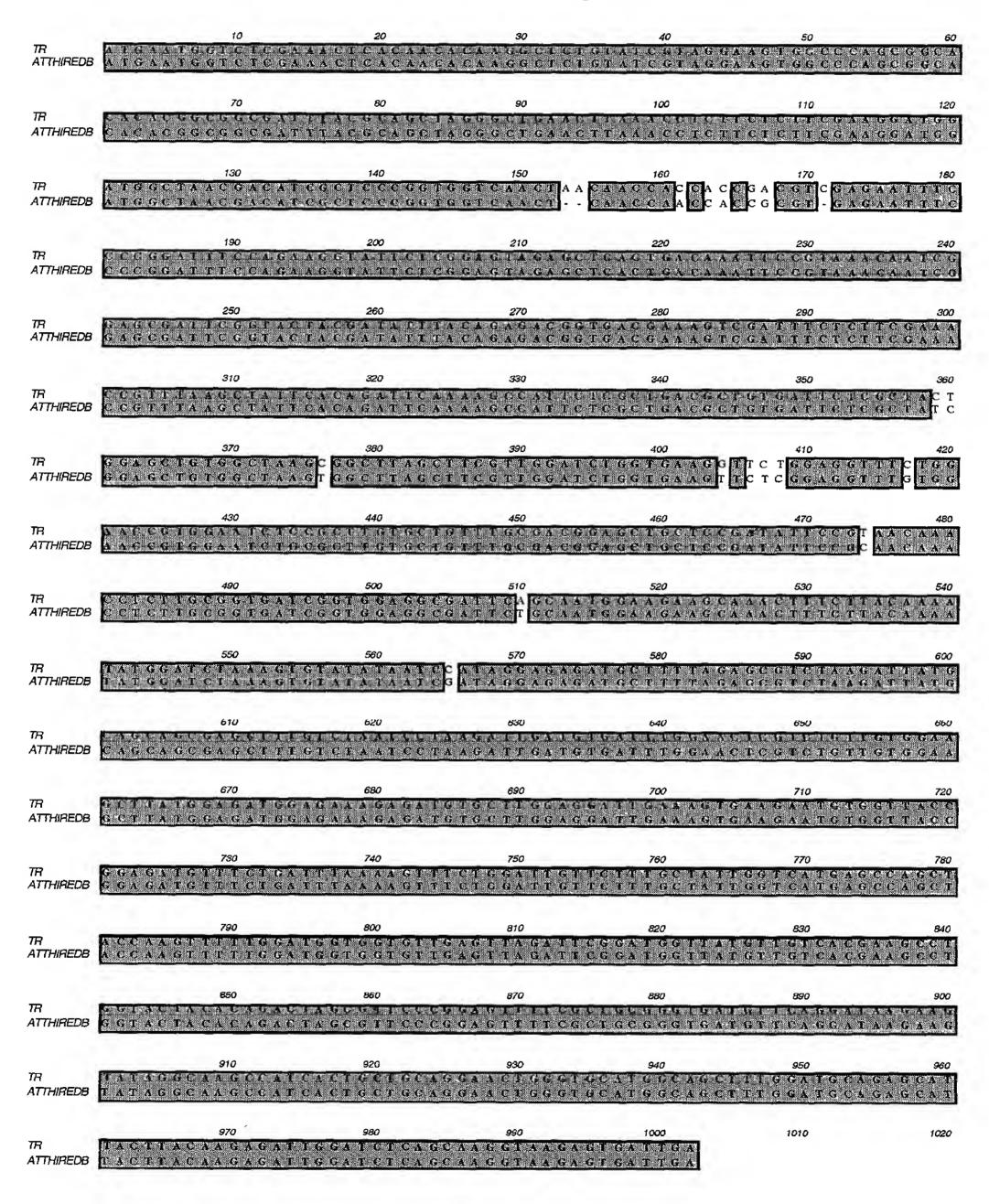


FIGURE 9

ClustalW Formatted Alignments

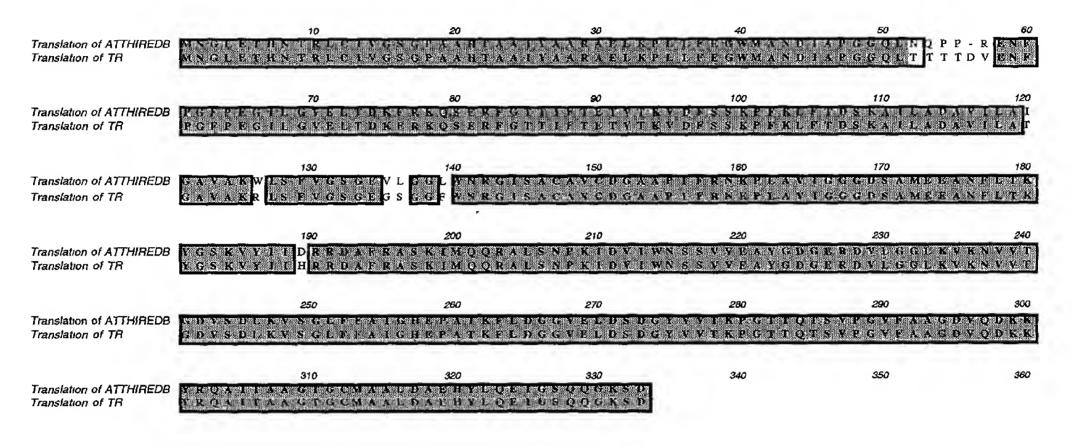


_	M	AAT N	GGT G	CTC L	GAA E	ACT T	CAC H	AAC N	ACA T	AGG R	CTC L	TGT C	ATC I	GTA V	GGA G	AGT S	GGC G	CCA P	GCG A	GCA A	60 20
61 21	CAC H	ACG T	GCG A	GCG A	ATT I	TAC Y	GCA A	GCT A	AGG R	GCT A	GAA E	CTT L	AAA K	CCT P	CTT L	CTC L	TTC F	GAA E	GGA G	TGG W	120 4 0
121 41	ATG M	GCT A	AAC N	GAC D	ATC I	GCT A	CCC P	GGT G	GGT G	CAA Q	CTA L	ACA T	ACC T	ACC T	ACC T	GAC D	GTC	GAG E	AAT N	TTC F	180 60
181 61	CCC P	GGA G	TTT F	CCA P	GAA E	GGT G	ATT I	CTC L	GGA G	GTA V	GAG E	CTC L	ACT T	GAC D	AAA K	TTC F	CGT R	AAA K	CAA Q	TCG S	240 80
241 81	GAG E	CGA R	TTC F	GGT G	ACT T	ACG T	ATA I	TTT F	ACA T	GAG E	ACG T	GTG V	ACG T	AAA K	GTC V	GAT D	TTC F	TCT S	TCG S	AAA K	300 100
301 101	CCG P		AAG K	CTA L	TTC F	ACA T	GAT D		AAA K	GCC A	ATT I	CTC L	GCT A	GAC D	GCT A	GTG V	ATT I	CTC L	GCT A	ACT T	360 120
361 121	GGA G	GCT A	GTG V	GCT A	AAG K	CGG R	CTT L	AGC S	TTC F	GTT V	GGA G	TCT S	GGT G	GAA E	GGT G	TCT S	GGA G	GGT G	TTC F	TGG W	420 140
421 141	AAC N	CGT R	GGA G	ATC I	TCC S	GCT A	TGT C	GCT A	GTT V	TGC C	GAC D	GGA G	GCT A	GCT A	CCG P	ATA I	TTC F	CGT R	AAC N	AAA K	480 160
481 161	CCT P			GTG V	ATC I	GGT G			GAT D	TCA S	GCA A	ATG M	GAA E	GAA E	GCA A	AAC N	TTT F	CTT L	ACA T	AAA K	540 180
541 181	TAT Y	GGA G			GTG V	TAT Y	ATA I		CAT H	AGG R	AGA R	GAT D	GCT A	TTT F	AGA R	GCG A	TCT S	AAG K	ATT I	ATG M	600 200
601 201	CAG Q				TTG L	TCT S	AAT N		AAG K	ATT I	GAT D	gtg V	ATT I	TGG W	AAC N	TCG S	TCT S	GTT V	GTG V	gaa E	660 220
661 221	GCT A			GAT D	GGA G	GAA E			GTG V	CTT L	GGA G	GGA G	TTG L	AAA K	GTG V	AAG K	AAT N	GTG V	GTT V	ACC T	720 240
721 241	GGA G		GTT V		GAT D	TTA L		GTT V	TCT S	GGA G	TTG L	TTC F	TTT F	GCT A	ATT I	GGT G	CAT H	GAG E	CCA P	GCT A	780 260
781 261	ACC T					GGT G				TTA L	GAT D	TCG S	GAT D	GGT G	TAT Y	GTT V	GTC V	ACG T	aag K	CCT	840 280
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Title: PREPARATION OF THIOREDOXIN AND THIOREDOXIN REDUCTASE ON OIL BODIES Inventor(s): Maurice M. MOLONEY et al. DOCKET NO.: 034547-0106

FIGURE 11

ClustalW Formatted Alignments



	PstI																				
	1	tgea	iggaa	ttca	ttgt	actc	ccag	tatc	atta	tagt	gaaa	gttt	tgga	tete	tege	eggte	gttt	ttta	cctc	tattt	a 80
	81 a	aggg	gttt	tcca	ccta	aaaa	ttet	ggta	tcat	tctc	actt	tact	tgtta	actti	taatt	tete	ataa	tctt	tggt	tgaaat	: 160
10	61 t	atca	cgct	tccg	caca	cgata	atcc	ctaca	aaat	ttat	tatti	tgtta	aaaca	attt	caaa	ccgc	ataa	aatt	ttat	gaagto	240
24	11 c	cgtc	tato	ttta	atgt	agtc	taaca	attt	cat	attga	aaata	atata	aattt	actt	aatt	ttag	cgtt	ggta	gaaa	gcataa	320
32	21 t	gatt	tatt	ctta	tteti	tctt	catat	caaat	gtti	taata	ataca	atat	aaac	aaat	tctt	tacc	ttaa	gaag	gatt	tcccat	400
40)1 t	ttat	attt	taaa	aatat	tattt	atca	aata	tttt	ttcaa	accad	gtaa	atct	cata	ataa	taag	ttgt	ttca	aaag	taataa	480
4.8	81 aa	attta	aact	ccata	aatt	tttt	atto	gact	gato	cttaa	agca	acac	ccag	tgac	acaa	ctag	ccat	tttt	ttct	ttgaat	560
56	1 aa	aaaa	aatco	caatt	catca	attgt	attt	tttt	tata	acaat	gaaa	attt	cacc	aaac	aatc	attt	gtgg	tatti	tctg	aagcaa	640
64	1 gt	cato	gttat	gcaa	aatt	ctat	aatt	ccca	tttg	jacac	tacg	gaag	taac	tgaa	gatc	tgct	ttta	catgo	cgaga	acacat	720
72	1 ct	teta	aagt	aatt	ttaa	taat	agtt	acta	tatt	caag	attt	cata	tatc	aaat	actc	aata	ttac	ttcta	aaaa	aattaa	800
80	1 tt	agat	ataa	ıttaa	aata	ttac	tttt	ttaa	tttt	aagt	ttaa	ttgt	tgaa	tttg	tgac	tatt	gatt	tatta	attot	tactat	880
88	1 gt	ttaa	attg	tttt	atag	atag	ttta	aagt	aaat	ataa	gtaa	tgta	gtag	agtg	ttaga	agtgt	tac	cctaa	acca	ataaac	960
96	1 ta	taag	rattt	atgg	tgga	ctaa	tttt	cata	tatt	tctt	attg	cttt	tacc	tttt	cttg	gtate	gtaag	gteeg	jtaac	tggaa	1040
104	1 tt	actg	tggg	ttgc	catg	gcac	tctg	tggt	cttt	tggt	tcat	gcat	ggat	gctt	gcgca	agaa	ıaaaç	gacaa	agaa	ıcaaag	1120
112	l aa	aaaa	gaca	aaac	agag	agaç	aaaa	cgca	atca	caca	acca	actca	aaatt	tagto	cacto	gctg	atca	agat	cgcc	gegte	1200
1201	L ca	tgta	tgtc	taaa	tgcc	atge	aaago	caaca	acgt	gctta	aacat	tgca	cttta	aatg	gata	acco	atct	caac	ccac	acaca	1280
1281	L aa	caca	ttgc	cttt	tteti	tcato	catca	accad	caac	cacci	tgtat	tatat	tcat	tete	ttcc	gcca	cctc	aatt	tett	cactt	1360
1361	. caa	acaca	acgt	caac	ctgca	atato	gegtg	gtcat	ccca	atgco	ccaaa	atcto	catg	gcatg	rttcc	aacc	acct	tctc	tctt	atata	1440
1441	. ata	accta	ataaa	ataco	ctcta	aatat	cact	cact	tctt	ttcat	cato	cato	cato	caga	gtac	tact	actc	tact	acta	taata	1520
1521 1	ccc	caac	ccaa	ctca	tatto	caata	actac	tcta													1587
1588	CAC	ACC	ርንጥ	GAG	aca.	ጥሮር	አ አሮ	CAC								_				С	11
1588 12	н	T	v	E	T	W	N	E	Q	L	Q	aag K	gct A	aat N	GAA E	TCC S	AAA K	ACT T	CTT L	gtg V	1647 31
1648 32		GTT V	GAT D	TTC F													CCA	TTC	TTT	GCT	1707
					T	A	S	W	C C	G	P	С	R	F	I	A	P	F	F	A	51
1708 52		L	A	AAG K	AAA K	CTT L	P	AAC N	gtg V	CTT L	TTC F	r CTC	aag K	GTT V	GAT D	ACT T	GAT D	GAA E	TTG L		1767 71

FIGURE 12 (CONT'D)

176	8 7	rcg	GTG	GCA	AGT	GAT	TGG	GCG	ATA	CAG	GCG	ATG	CCA	ACC	TTC	ATG	TTT	TTG	AAG	GAA	GGG	1827
7	2 \$	3	V	A	S	D	W	A	ı	Q	A	M	P	T	F	M	F	L	ĸ	E	G	91
	8 <i>I</i> 2 K		ATT I	TTG L	GAC D Hind	K	GTT V	GTT V	GGA G	GCC A	AAG K	AAA K	GAT D	GAG E	CTT L	CAG Q	TCT S	ACC T	ATT I	GCC A	AAA K	1887 111
188	8 (CAC	TTG	GCT			taat	aagt	atoa	acta	aaat	gcat	ataa	at at:		~~+ ~·	. + aa-		~~+~~		ittgt	1000
	5 н				*							gout	gcag	gcgc	aaya	gulua	ıcgga	agago	catgg	gaata	ıttgt	1963 115
196	54	atc	cgac	catg	taac	agta	taat	aact	gagc	tcca	tctc	actto	cttct	atga	ataa	acaa	agga	ıtgtt	atga	tata	ttaa	2043
204	4	cact	tcta	tcta	tgca	cctt	attg	ttct	atgai	taaai	tttc	ctctt	atta	ttat	aaat	cato	tgaa	tcgt	gacg	gctt	atgg	2123
212	4 :	aat	gctt	caaa	tagt	acaa	aaaca	aaatq	gtgta	actai	taaga	acttt	ctaa	acaa	ttct	aact	ttag	catt	gtga	acga	gaca	2203
220	4	taag	gtgt	taag	aaga	cata	acaat	tata	aatgg	gaaga	aagtt	tgto	tcca	ttta	tata	ttat	atat	tacc	cact	tatg	tatt	2283
228	4 8	atat	tag	gatgi	ttaa	ggag	acata	acaa	attat	aaag	gagag	gaagt	ttgt	atco	attt	atat	atta	tata	ctac	ccat	ttat	2363
236	4 8	atat	tata	actta	atcca	actta	attta	atgt	cttt	ataa	ggtt	tgat	ccat	gata	tttc	taat	attt	tagt	tgat	atgt	atat	2443
244	4 9	gaaa	ıgggt	tacta	attt	gaact	tetet	tact	ctgt	ataa	aggt	tgga	tcat	cctt	aaag	tggg	tcta	ttta	attt	tatt	gctt	2523
252	4 0	ctta	caga	ataaa	aaaa	aaaat	tatg	agtt	ggtt	tgat	aaaa	tatt	gaag	gatt	taaa	ataa	taat	aaat	aata	aataa	acat	2603
260	4 a	ataa	tata	atgta	atata	aaatt	tatt	ataa	tata	acat	ttat	ctat	aaaa	aagt	aaat	attg	tcata	aaat	ctata	acaat	tcgt	2683
268	4 t	tag	cctt	getg	gacç	gacto	tcaa	ttat	ttaa	acga.	.gagt	aaac	atat	ttga	cttt	ttgg	ttati	ttaa	caaat	ttatt	att	2763
276	4 t	aac	acta	atatg	gaa at	tttt	ttt	ttta	tegg	caag	gaaa	taaa	atta	aatt	agga	ggga	caato	ggtgi	tgtco	ccaat	cet	2843
284	4 t	ata	caac	caac	ttcc	acag	gaag	gtca	ggtc	aaaa	acaa	caaa	aaaa	cagg	caag	ggaaa	attti	tttaa	atttg	ggtt	gtc	2923
292	i t	tgt	ttgc	tgca	taat	ttat	gcag	taaa	acac	taca	cata	accc	tttta	agca	gtaga	agcaa	tggt	tgad	cgtg	ıtgct	tag	3003
3004	l c	ttc	tttt	attt	tatt	tttt	tatc	agca	aaga	ataa	ataa	aataa	aaatg	gagad	cactt	cagg	gato	gttto	aacc	ctta	itac :	3083
3084	aa	aac	ccca	aaaa	caag	tttc	ctago	cacco	taco	aact	aagg	tacc									:	3129

KpnI

Pst	I																				
1	_ct	ıcagı	gaatt	catt	gtac	taaa	agta	tcat	tata	ıgtga	aagt	tttg	gctc	tete	gccg	gtgg	tttt	ttac	ctct	attta	80
8	1 aa	gggg	tttt	ccac	ctaa	aaati	tctgg	gtato	att	ctca	cttt	actt	gttac	ettta	attt	ctca	taat	cttt	ggtt	gaaat	160
161	L ta	tcac	gctt	ccgc	acacç	gatat	caat	acaa	atti	tatt	attt	gtta	aacat	tttc	aaac	cgca	taaa	attt	tatg	aagtc	240
24:	l cc	gtct	atct	ttaai	tgtag	gteta	aacat	tttc	ata	ttga	aata	tataa	attta	ıçtta	attt	tago	gttg	gtag	raaag	cataa	320
321	L tg	attt	att¢	ttati	tette	cttca	atata	aatg	rttta	aata	taca	atata	aaca	aatt	cttt	acct	taag	aagg	rattt	cccat	400
401	L tt	tata	tttt	aaaa	atata	attta	atcaa	atat	ttti	tcaa	ccac	gtaaa	atcto	ataa	taat	aagt	tgtt	tcaa	aagt	aataa	480
481	L aa	ttta	actc	cata	attt	tttta	atteg	gactg	ratci	taa	agca	acac	ccagt	gaca	caac	tagc	catt	tttt	tctt	tgaat	560
561	L aa:	aaaa	atcc	aatta	atcat	tgta	atttt	: tt tt	atac	caat	gaaa	attt	cacca	aaca	atca	tttg	tggt	attt	.ctga	agcaa	640
641	L gt	catg	ttat	gcaaa	aatto	ctata	aatto	ccat	ttga	acac	tacg	gaagi	taact	gaag	atct	gctt	ttac	atgo	gaga	cacat	720
721	L ct	tcta	aagta	aatti	ttaat	taata	agtta	ctat	atto	caag	attt	catat	atca	aata	ctca	atat	tact	tcta	aaaa	attaa	800
801	L tta	agata	ataat	ttaaa	aatat	tact	ttt	taat	ttta	agt	ttaai	ttgti	gaat	ttgt	gact	attg	attt	atta	ttct	actat	880
881	l gt	ttaa	attgi	tttt	ataga	atagt	ttaa	agta	aata	ataa	gtaai	tgtag	gtaga	ıgtgt	taga	gtgt	tacc	ctaa	acca	taaac	960
961	L tai	taagi	attta	atggt	ggad	ctaat	tttc	atat	attt	ctt	attgo	cttt	acct	tttc	ttgg	tatg	taag	tccg	rtaac	tggaa	1040
1041	. tta	actgi	tgggt	tgcc	atgg	gcact	ctgt	ggtc:	tttt	ggti	tcate	gcato	gatg	cttg	cgca	agaa	aaag	acaa	agaa	caaag	1120
1121	. aaa	aaag	gacaa	aaca	ıgaga	igaca	aaac	gcaa	tcac	acaa	accaa	actca	aatt	agtc	actg	gctg	atca	agat	agac	gcgtc	1200
1201	. cat	gtat	gtct	caaat	gcca	tgca	aagc	aaca	cgto	g ct ta	aacat	gcac	ttta	aatg	gctc	accc	atct	caac	ccac	acaca	1280
1281	. aac	cacat	tgc	ettt	tott	cato	atca	ccac	aaco	acct	tgtat	tatat	tcat	tete	ttcc	gcca	aata	aatt	tett	cactt	1360
1361	. caa	ıcaca	acgto	caaco	etgca	ıtatg	cgtg	rtcat	ccca	tgc	ccaaa	atcto	catg	catg	ttcc	aacc	acct	tata	tctt	atata	1440
1441	. ata	accta	ataaa	ataco	etcta	ıatat	cact	cact	tett	tcat	cato	ccato	cato	caga	gtac	tact	actc	tact	acta	taata	1520
1521 1	CCC	caac	ccaa	ctcat	tatto	caata	ıctac	tcta												GAT D	1587 11
1588	ATC	ATC	GGC	AGA	GAC	CAG	TAC	CCG	ATG	ል ጥር	ecc	CGA	GAC	CGA	GAC	CAG	ጥልሮ	CAG	አ ጥር	TCC	1647
12													D				Y		M	S	31
1648	GGA	CGA	GGA	TCT	GAC	TAC	TCC	AAG	TCT	AGG	CAG	ATT	GCT	AAA	GCT	GCA	ACT	GCT	GTC	ACA	1707
32	G	R	G	S	D	Y	S	ĸ	s	R	Q	ı	A	ĸ	A	A	T	A	v	T	51
1708	GCT	GGT	GGT	TCC	CTC	CTT	GTT	CTC	TCC	AGC	CTT	ACC	CTT	GTT	GGA	ACT	GTC	ATA	GCT	TTG	1767
52	A	G	G	S	T.	Ţ.	v	L	S	S	7.	ďι	T.	v	G	T	v	т	Δ	τ.	71

FIGURE 13 (CONT'D)

-/-	The state of the s															1827					
72	T	v	A	T	P	L															91
1828	GTT	GCA	CTC	CTC	ATC	. ACC	GGI	י קייניי	r Cma	י יייניני	ւ ահեր	י ממז	A CCC	. www	, ccc	5 3.00m					100-
92	v	A	L	L	I	T	G														1887
								•	_	J		J	G	F	G	1	A	A	1	T	111
1888		TTC		TGG	ATT	TAC	AA	gtaa	gcac	acat	ttat	cato	ttac	ttca	taat	tttg	tgca	atat	gtgc	atgca	1960
112	v	F	S	W	I	Y	K														118
196.	1 tg	tgtt	gagco	cagta	gct	ttgga	atcaa	attt	tttt	ggtc	gaata	acaa	aatgt	aaca	aataa	gaaa	ttgc	aaat	tcta	gggaa	2040
204	1 ca	tttgg	gttaa	actaa	atad	cgaaa	attt	gacci	tagc	tagc	ttgaa	tgtg	gtetg	rtgta	tato	atct	atat	aggt	aaaa	tgctt	2120
2121	ggt	atga	tacc	tatt	gatt	gtga	ataq	GT	AC G	CA A	CG G	GA G	ag c	ልሮ ሮ	ሮኔ ሮ	7G G	ኋአ ሙ	C2 C	3 <i>0</i> 1 3:		2104
119																				AG	2184 130
0105										_			- <u>-</u> -	•	×	J	5	ב	· ·		130
2185	I L D S A R M K L G S K A Q D L K D R A Q TAC TAC GGA CAG CAA CAT ACT GGT GGG GAA CAT GAC CGT GAC CGT ACT CGT GGC CAG															2244					
131	L	D	S	A	R	M	K	L	G	S	K	A	Q	D	L	K	D	R	A	Q	150
2245	TAC	TAC	GGA	CAG	CAA	CAT	ACT	GGT	GGG	GAA	CAT	GAC	CGT	GAC	CGT	АСТ	CGT	GGT	GGC	CAG	2304
151	Y	Y	G	Q	Q	H	T	G	G	E	H	D	R	D	R						170
			No	:oI															-	×	170
2305	1 L D S A R M K L G S K A Q D L K D R A Q 1 5 TAC TAC GGA CAG CAA CAT ACT GGT GGG GAA CAT GAC CGT GAC CGT ACT CGT GGT GGC CAG 2 1 Y Y G Q Q H T G G E H D R D R T R G G Q 1 NCOI 5 CAC ACT ACC ATG GCT TCG GAA GAA GGA CAA GTG ATC GCC TGC CAC ACC GTT GAG ACA TGG 2 1 H T T M A S E E G Q V I A C H T V E T W 1															2364					
171	H	T	T	M	A	ន	E	E	G	Q	v	I	A	C	н	T	v	E	T	W	190
2365	AAC	GAG	CAG	COM	CAC	330	COM	330	~	maa											
191																		TTC	ACG	GCT	2424
	-1	-	×		¥	K	A	N	E	5	K	T	L	V	٧	V	D	F	T	A	210
2425	TCT	TGG	TGT	GGA	CCA	TGT	CGT	TTC	ATC	GCT	CCA	TTC	TTT	GCT	GAT	TTG	GCT	AAG	AAA	СТТ	2484
211						C	R	F	I	A	P	F	F	A	D	L	A	ĸ	ĸ	L	230
2405	CCM	330	ama	~~~	-																
231			GTG											AAG	TCG	GTG	GCA	AGT	GAT	TGG	2544
231	•	N	v :	L :	F	L	K	V	D	T	D	E	L	K	S	V	A	ន	D	W	250
			CAG	GCG	ATG	CCA	ACC	TTC	ATG	TTT	TTG	AAG	GAA	GGG	AAG	ATT	TTG	GAC	AAA	GTT	2604
251	A	I (Q 2	A 1	M	P	T	F	M	F	L	K	E	G	K	I	L	D	K	v	270
2605	GTT	GGA	GCC .	AAG	AAA	GAT	GAG	CTT	CAG	тст	ACC	ATT	GCC	AAA	CAC	TTG	GCT	TAA	actt	aata	2666
271									Q	S	T						A	*	3000		288
2667	agta	atoss	ort a s	aato	.a=+	7+ a ~	-+ ~ + ·														
	ug C	zegae	40 CQC	aacy	Jeacs	juagç	jugua	agag	jetea	ıtgga	agago	atgg	j aata	ttgt	atcc	gacc	atgt	aaca	gtata	aata	2746
2747	act	gagct	ccat	ctca	ctto	ttet	atga	ataa	acaa	agga	atgtt	atga	tata	ttaa	cact	ctat	ctat	gcac	cttat	ttgt	2826
2827	tcta	atgat	aaat	ttcc	tett	atta	ıttat	aaat	cato	tgaa	atcgt	gacg	gctt	atgg	aatg	cttc	aaat	agta	caaa	aca	2906
2907	aatg	gtgta	ectat	aaga	cttt	ctaa	acaa	ttct	aact	ttag	gcatt	gtga	acga	gaca	taag	tgtta	aaga	agac	ataad	aat	2986
2987	tata	atgg	gaaga	agtt	tgto	tcca	ttta	ıtata	ttat	atat	taco	cact	tatg	tatt	atat	tagga	atgt	taag	gagac	ata	3066

FIGURE 13 (CONT'D)

306	7 acaattataaagagagaagtttgtatccatttatatattatatactacccatttatatata	3146
314	7 atgtotttataaggtttgatocatgatatttotaatattttagttgatatgtatatgaaagggtactatttgaactotot	3226
3227	7 tactctgtataaaggttggatcatccttaaagtgggtctatttaattttattgcttcttacagataaaaaaaa	3306
3307	7 agttggtttgataaaatattgaaggatttaaaataataat	3386
3387	7 ataatataacatttatctataaaaaagtaaatattgtcataaatctatacaatcgtttagccttgctggacgactctcaa	3466
3467	7 ttatttaaacgagagtaaacatatttgactttttggttatttaacaaattattatttaacactatatgaaatttttttt	3546
3547	tttatcggcaaggaaataaaattaaattaggagggacaatggtgtgtcccaatccttatacaaccaac	3626
3627	gtcaggtcggggacaacaaaaaacaggcaagggaaatttttaatttgggttgtcttgtttgctgcataatttatgcag	3706
3707	taaaacactacacataacccttttagcagtagagcaatggttgaccgtgtgcttagcttctttttatttttttt	3786
3787	agcaaagaataaataaaataaaatgagacacttcagggatgtttcaacccttatacaaaaccccaaaaacaagtttccta	3866
3867	gcaccctaccaactaaggtacc	3888

KpnI

FIGURE 14

PstI

FIGURE 14 (CONT'D)

1768	TCG	GTG	GCA	AGT	GAT	TGG	GCG	ATA	CAG	GCG	ATG	CCA	ACC	TTC	ATG	TTT	TTG	AAG	GAA	GGG	1827
72	S	V	A	S	D	W	A	I	Q	A	M	P	Т	F	M	F	L	K	E	G	91
1828	AAG	ATT	TTG	GAC	AAA	GTT	GTT	GGA	GCC	AAG	AAA	GAT	GAG	CTT	CAG	TCT	ACC	ATT	GCC	AAA	1887
92	K	I	L	D	K	V	V	G	A	K	K	D	E	L	Q	S	T	I	Α	K	111
1888	CAC	TTG	GCT	ATG	GCG	GAT	ACA	GCT	AGA	GGA	ACC	CAT	CAC	GAT	ATC	ATC	GGC	AGA	GAC	CAG	1947
112	H	L	A	M	A	D	Т	A	R	G	T	Н	H	D	I	I	G	R	D	Q	131
1948	TAC	CCG	ATG	ATG	GGC	CGA	GAC	CGA	GAC	CAG	TAC	CAG	ATG	TCC	GGA	CGA	GGA	TCT	GAC	TAC	2007
132	Y	P	M	M	G	R	D	R	D	Q	Y	Q	М	S	G	R	G	S	D	Y	151
2008	TCC	AAG	TCT	AGG	CAG	ATT	GCT	AAA	GCT	GCA	ACT	GCT	GTC	ACA	GCT	GGT	GGT	TCC	CTC	CTT	2067
152	S	K	S	R	Q	I	A	K	A	A	Т	A	V	Т	A	G	G	S	L	L	171
2068	GTT	CTC	TCC	AGC	CTT	ACC	CTT	GTT	GGA	ACT	GTC	ATA	GCT	TTG	ACT	GTT	GCA	ACA	CCT	CTG	2127
172	V	L	S	S	L	T	L	V	G	T	V	I	A	L	Т	V	A	T	P	L	191
2128	CTC	GTT	ATC	TTC	AGC	CCA	ATC	CTT	GTC		GCT	CTC	ATC	ACA	GTT			CTC	ATC		2187
192	L	V	I	F	S	P	I	L	V	P	A	L	Ι	T	V	A	L	L	I	Т	211
2188	GGT	TTT	CTT	TCC	TCT	GGA	GGG	TTT	GGC	ATT	GCC	GCT	ATA	ACC	GTT	TTC	TCT	TGG	ATT	TAC	2247
212		F	L	s	s	G	G	F	G	I	A	A	I	${f T}$	V	F	S	W	I	Y	231
2248 232	-	gtaag	gcaca	acatt	tato	catci	tact	tcat	aatt	ttgt	gcaa	itatg	gtgca	itgca	tgtg	rttga	igcca	gtag	rcttt	ggat	2326 232
2327	caa	attt	tttg	gtcg	raata	acaa	atgt	aaca	ataa	gaaa	ttgc	aaat	tcta	ggga	acati	ttgg(ttaad	ctaaa	atacg	gaaat	2406
2407	ttg	racct	agct	agct	tgaa	tgtg	tctg	tgta	tatc	atct	atat	aggt	aaaa:	tgct	tggta	atgai	tacct	tattg	gattg	qtgaa	2486
2487	tag	G TA	AC GO	CA AC	CG G(GA GA	AG CA	AC CC	CA CA	AG GG	A TO	CA GA	AC AA	AG TI	rg ga	AC AG	T GO	CA AG	G AT	'G	2544
233	J	Y		Т	G	E	Н	P	Q	G	S	D	K	L	D	S	A	R	М		250
2545	AAG	TTG	GGA	AGC	AAA	GCT	CAG	GAT	CTG	AAA	GAC	AGA	GCT	CAG	TAC	TAC	GGA	CAG	CAA	CAT	2604
251	K	L	G	s	K	A	Q	D	L	K	D	R	A	Q	Y	Y	G	Q H	Q indII	H	270
2605	ACT	GGT	GGG	GAA	CAT	GAC	CGT	GAC	CGT	ACT	CGT	GGT	GGC	CAG	CAC	ACT	ACT	T <u>AA</u>	gctt	aata	2666
271	T	G	G	E	H	D	R	D	R	T	R	G	G	Q	Н	T	Т	*			288
2667	agt	atga	acta	aaat	gcat	gtag	gtgt	aaga	gctc	atgg	agag	catg	gaat	attg	tatco	cgaco	catgt	caaca	agtat	aata	2746
2747	act	gago	tcca	atcto	actt	cttc	tatg	aata	aaca	aagg	atgt	tatg	atata	atta	acact	tctat	ctat	gcad	cctta	ttgt	2826
2827	tct	atga	ataaa	attto	ctct	tatt	atta	taaa	tcat	ctga	atcg	tgac	ggct	tatg	gaatq	gctto	caaat	tagta	acaaa	aaca	2906
2907	aat	gtgt	acta	ataag	gactt	tcta	aaca	attc	taac	ttta	gcat	tgtg	aacg	agac	ataa	gtgtt	aaga	aagad	cataa	caat	2986
2987	tat	aato	rgaac	raaqt	ttat	ctcc	attt	ata t	atta	tata	ttac	ccac	ttate	gtat	tatai	ttago	gatgt	taac	ıgaga	cata	3066

FIGURE 14 (CONT'D)

3067	acaattataaagagagaagtttgtatccatttatatattatatactacccatttatatata	3146
3147	atgtctttataaggtttgatccatgatatttctaatattttagttgatatgtatatgaaagggtactatttgaactctct	3226
3227	tactctgtataaaggttggatcatccttaaagtgggtctatttaattttattgcttcttacagataaaaaaaa	3306
3307	agttggtttgataaaatattgaaggatttaaaataataat	3386
3387	ataatataacatttatctataaaaaagtaaatattgtcataaatctatacaatcgtttagccttgctggacgactctcaa	3466
3467	ttatttaaacgagagtaaacatatttgactttttggttatttaacaaattattatttaacactatatgaaatttttttt	3546
3547	tttatcggcaaggaaataaaattaaattaggagggacaatggtgtgtcccaatccttatacaaccaac	3626
3627	gtcaggtcggggacaacaaaaaacaggcaagggaaattttttaatttgggttgtcttgtttgctgcataatttatgcag	3706
3707	taaaacactacacataacccttttagcagtagagcaatggttgaccgtgtgcttagcttcttttatttttttt	3786
3787	agcaaagaataaataaaataaaatgagacacttcagggatgtttcaacccttatacaaaaccccaaaaacaagtttccta	3866
3867	gcaccctaccaactaaggtacc	3888
	KonT	

FIGURE 15

PstI

ctc	<u>rcago</u>	gaatt	catt	gtac	ctccc	agta	tcat	tata	igtga	aagt	tttg	geto	ctctc	gaag	ggtgg	rtttt	ttac	ctct	attta	80
1 aa	agggg	gtttt	ccac	cctaa	aaaat	tctg	gtat	catt	ctca	cttt	actt	gtta	cttt	aatt	tctc	ataa	tctti	tggtt	gaaat	160
l ta	tcac	gctt	cege	acac	gata	tccc	taca	aatt	tatt	attt	gtta	aaca	tttt	caaa	ccgc	ataaa	aattt	tato	gaagtc	240
1 cc	gtct	atct	ttaa	tgta	igtct	aaca	tttt	cata	ttga	aata	tata	attt	actt	aatt	ttago	cgtto	ggtag	gaaag	rcataa	320
l tg	attt	atto	ttat	tctt	cttc	atat	aaat	gttt	aata	taca	atat	aaac	aaat	tctti	tacct	taag	gaagg	gattt	cccat	400
l tt	tata	.tttt	aaaa	atat	attt	atca	aata	tttt	tcaa	ccac	gtaa	atcto	cata	ataai	taagt	tgtt	ttcaa	aagt	aataa	480
L aa	ttta	actc	cata	attt	tttt	attc	gact	gatc	ttaa	agcaa	acac	ccag	tgaca	acaa	ctago	catt	tttt	tctt	tgaat	560
L aa	aaaa	atcc	aatt	atca	ttgt.	attt	tttt	tata	caat	gaaa	attt	cacca	aaaca	aatca	atttg	gtggt	tattt	ctga	agcaa	640
l gt	catg	ttat	gcaa	aatt	ctat	aatt	ccca	tttga	acact	cacgo	gaagt	taact	gaag	gatct	gctt	ttac	catgo	gaga:	.cacat	720
. ct	tcta	aagt	aatt	ttaa	taat	agtt	acta	tatto	caaga	attto	cata	tatca	aaata	actca	aatat	tact	tcta	aaaa	attaa	800
. tt	agat	ataa	ttaa	aata	ttac	tttt	ttaai	tttta	aagtt	taat	tgtt	gaat	ttgt	gact	attg	rattt	atta	ttct	actat	880
000	caac	caa	cca	cacce	Jaaca	Clac	licia													1587 11
TGT C																				1647
	AAA																			31
				L	F							D	I	A	P	GGT	GGT	Q	L	1707 51
ACA	ACC	ACC	ACC	GAC	GTC	GAG	ААТ	TTC	CCC	GGA	TTT	CCA	GAA	GGT	ATT	CTC	GGA	GTA	GAG	1767
	1 aa l ta l ca l c	1 aagggg 1 tatcac 1 ccgtct 1 tgattt 1 tttata 1 aatta 1 aaaaaa 1 gtcatg 1 cttcta 1 ttagat 1 ttagat 1 ttactgt 1 aaaaaaa 2 catgtat 1 caccaac 2 caccaac 3 catgtat 1 caccaac 4 caccaac 6 caccaa	1 aagggttta 1 tatcacgctt 1 ccgtctatct 1 tgatttattc 1 tgatttattc 1 aatttaactc 1 aaaaaaatcc 2 gtcatgttat 2 cttctaaagt 3 ttagatataa 4 gtttaaattg 5 tataagattt 6 ttactgtggg 6 aaaaaagacaa 6 catgtatgtca 6 aacacacgtc 6 aacacacgtc 6 aacacacgtc 6 aacacacgtc 6 atacctataaa 6 ccccaacccaac 7 TGT ATC GTA C I V CTT AAA CCT L K P	1 aagggttttcaa 1 tatcacgcttccga 1 ccgtctatctttaa 1 tgatttattcttat 1 tttatattttaaaa 1 aatttaactccata 1 aaaaaaatccaatt 2 gtcatgttatgcaa 2 cttctaaagtaatt 3 ttagatataattaa 4 gtttaaattgttt 5 tatagatttatgg 6 ttactgtgggttgcaaaaaaaaaaaaaaaaaaaaaaaaa	1 aagggttttccacctaa 1 tatcacgcttccgcacac 1 ccgtctatctttaatgta 1 tgatttattcttattctt 1 tttatattttaaaaatat 1 aatttaactccataattt 1 aaaaaaatccaattatca 2 gtcatgttatgcaaaatt 3 cttctaaagtaattttaa 4 ttagatataattatagtgga 5 tataagatttatggtgga 6 ttactgtgggttgccatgg 6 aaaaaagacaaaacagaga 6 catgtatgtctaaatgcca 6 aacacatgcttttctt 6 caacacacgtcaacctgca 6 atacctataaatacctcta 7 ccccaacccaactcatattc	1 aagggttttccacctaaaaat 1 tatcacgcttccgcacacgata 1 ccgtctatctttaatgtagtct 1 tgatttattcttattcttctc 1 tttatattttaaaaatatattt 1 aatttaactccataatttttt 1 aaaaaaatccaattatcattgt 2 gtcatgttatgcaaaattctat 3 gtttaaattgtttatagatag 5 tataagatttatggtggactaa 6 ttactgtgggttgccatggcact 6 aaaaaagacaaaacagagagaca 6 catgtatgtctaaatgccatgca 6 aacacatgctttttcttcatc 6 caacacacgtcaacctgcatatg 6 atacctataaatacctctaatat 7 GT ATC GTA GGA AGT GGC 7 CT AAA CCT CTT CTC TTC 8 L K P L L F	1 aaggggttttccacctaaaaattctg 1 tatcacgcttccgcacacgatatccc 1 ccgtctatctttaatgtagtctaaca 1 tgatttattcttattcttcttcatat 1 tttatattttaaaaatatatttatca 1 aatttaactccataatttttttattc 1 aaaaaaatccaattatcattgtattt 2 gtcatgttatgcaaaattctataattc 3 ttagatataattaaatatttaataattc 4 ttagatataattaaaatatttaataattc 5 gtttaaattgttttatagatagttaa 6 ttagatataattatagtggactaatttc 7 gtttagggttgccatggcactctgt 7 aaaaaaagcaaaacagagagacaaaac 7 aacacacgtcaacctgcatatgcgtg 8 atacctataaatacctctaatatcact 7 ATC GTA GGA AGT GGC CCA 7 CT AAA CCT CTT CTC TTC GAA 7 L K P L L F E	1 aaggggttttccacctaaaaattctggtat 1 tatcacgcttccgcacacgatatccctaca 1 ccgtctatctttaatgtagtctaacattt 1 tgatttattcttattcttcttcatataaat 1 tttatattttaaaaatattttttatcaaata 1 aatttaactccataattttttttttttattcgact 1 aaaaaaaatccaattatcattgtatttttt 2 gtcatgttatgcaaaattctataattccca 2 cttctaaagtaattttaataatgttacta 3 gtttaaattgttttatagatagtttaaagta 4 ttactgtgggttgccatggcactctgtggtc 5 aaaaaaagacaaaaacagagagacaaaaacgcaa 5 catgtatgtctaaatgccatgcaaaagcaaca 6 catgtatgtctaaatgccatgcaaagcaaca 6 caacacacgtcaacctgcatatgcgtgtcat 6 aacacacacgtcaacctgcatatgcgtgtcat 6 atacctataaatacctctaatatcactcact 7 GT ATC GTA GGA AGT GGC CCA GCG 7 C I V G S G P A 7 CTT AAA CCT CTT CTC TTC GAA GGA 8 L K P L L F E G	1 aaggggttttccacctaaaaattctggtatcatt 1 tatcacgcttccgcacacgatatccctacaaatt 1 ccgtctatctttaatgtagtctaacattttcata 1 tgatttattcttattcttcttcataataaatgtt 1 tttatattttaaaaataattttttacaaatattt 1 aaaaaaatccaattatcattgtatttttttataa 2 gtcatgttatgcaaaattctataattgtattttttata 3 gtcatgttatgcaaaattctataatgtactatatt 4 ttagatataattaaaattttttaataatgtaccattgg 5 cttctaaagtaattttaataatagttactatatt 6 gttaaaattgttttatagatagtttaaagtaaata 7 staaagatttatggtggactaattttcatatatt 8 ttactgtgggttgccatggcactctgtggtcttt 8 aaaaaaagacaaaacagagagacaaaaacgcaatcac 8 catgtatgtctaaatgccatgcaatagcgtgtcatccaa 8 catgtatgtctaaatgccatgcaaagcaacacgtg 8 aacacattgcctttttcttcatcatcaccacaacc 9 caacacacgtcaacctgcatatgcgtgtcatccca 8 atacctataaatacctctaatatcactcacttctt 8 ccccaacccaacccaactcatattcaatactcacttctt 8 ccccaacccaacccaactcatattcaatactcactctct 8 ccccaacccaacccaactcatattcaatactcactctct 8 ccccaacccaacccaactcatattcaatactcactctct 8 ccccaacccaacccaactcatattcaatactcactctct 8 ccccaacccaacccaactcatattcaatactcactctct 8 ccccaacccaacccaactcatattcaatactcactctct 9 cccaacccaacccaactcatattcaatactcactctct 9 cccaacccaacccaactcatattcaatactcactcact 9 cccaacccaacccaacccaacccaacccaacccaacc	1 aaggggttttccacctaaaaattctggtatcattcta 1 tatcacgcttccgcacacgatatccctacaaatttatt 1 ccgtctatctttaatgtagtctaacattttcatattga 1 tgatttattcttattcttcttcatataaatgtttaata 1 tttatattttaaaaatattttttatcaaatatttttcaaa 1 aatttaactccataatttttttattcgactgatcttaaa 1 aaaaaaaatccaattatcattgtatttttttatacaatg 2 gtcatgttatgcaaaattctataattcccatttgacact 3 cttctaaagtaattttaataaatgttaatattcaaga 5 ttagatataattaaaaatattactttttaaatttaagat 6 gtttaaattgttttatagatagtttaaagtaaatataag 7 tatagatataattaggtggactaattttcatatttctaa 8 ttactgtgggttgccatggcactctgtggtcttttggtt 8 aaaaaaagacaaaacagagagacaaaacgcaatcacacaa 8 catgtatgtctaaatgccatgcaaagcaacacgtgctta 8 aacacattgccttttcttcatcatcaccacaaccacct 8 caacacacgtcaacctgcatatgcgtgtcatcccatgcc 8 atacctataaatacctctaatatcactcacttctttcat 8 ccccaacccaacccacaccaccaccaccaccaccaccac	1 aaggggttttccacctaaaaattctggtatcattctcactt 1 tatcacgcttccgcacacgatatccctacaaatttattatt 1 ccgtctatctttaatgtagtctaacattttcatattgaaata 1 tgatttattcttattcttcttcatataaatgtttaatataca 1 tgatttattcttattcttcttcatataaatatttttcaacacg 1 aatttaactccataatttttttattcgactgatcttaaagca 1 aaaaaaaatccaattatcattgtatttttttatacaatgaaa 2 gtcatgttatgcaaaattctataattcccatttgacactacgg 2 cttctaaagtaattttaataatagttactatattcaagattc 2 ttagatataattaaaaatattttttaataattcaagattc 3 gtttaaattgttttatagatagtttaaagtaaatataagttaat 4 gtttaaattgttttatagatagtttaaagtaaatataagttaat 5 gtttaaattgttttatagatagtttaaagtaaatatcatagttaat 6 gtttaaattgttttatagatagtttaaagtaaatatcttattcttattgc 6 ttactgtgggttgccatggcactctgtggtcttttggttcatg 6 ttactgtgggttgccatggcactctgtggtcttttggttcatg 6 aaaaaaagacaaaacagagagacaaaacgcaatcacaaaccaa 6 catgtatgtctaaatgccatgcaaagcaacacgtgcttaacat 6 aacacacgtcaacctgcatatgcgtgtcatcccatgcccaaa 6 aacacacttgccttttcttcatcatcaccacacaccccgtat 6 caacacacgtcaacctgcatattcaatacctcacttctttcatcatc 7 caacacacaccaaccaactcaatattcaatactcactcttttcatca	1 aaggggttttccacctaaaaattctggtatcattctcactttactt 1 tatcacgcttccgcacacgatatccctacaaatttattatttgtta 1 ccgtctatctttaatgtagtctaacattttcatattgaaatataa 1 tgatttattcttattcttcttcatataaatgtttaatatacaatat 1 tttatattttaaaaatattttttatcaaatatttttcaaccacgtaa 1 aaattaactccataatttttttattcgactgatcttaaagcaacac 2 aaaaaaatccaattatcattgtatttttttatacaatgaaaattc 3 gtcatgttatgcaaaattctataattcccatttgacactacggaag 2 cttctaaagtaattttaataatagttactatattcaagatttcata 3 ttagatataattaaaatattactttttaatttaaggttaatgta 4 cttctaaagtaattttaatagatagttaaagtaaaatataggtaattcata 5 gtttaaattgttttatagatagtttaaagtaaatataagtaatgta 6 gtttaaattgttttatagatagtttaaagtaaatataagtaatgta 7 tataagatttatggtggactaatttcatatttcttattgcttt 7 ttactgtgggttgccatggcactctgtggtcttttggttcatgcatg	1 aaggggttttccacctaaaaattctggtatcattctcactttacttgtta 1 tatcacgcttccgcacacgatatccctacaaatttattatttgttaaaca 1 ccgtctatctttaatgtagtctaacattttcatattgaaatatataattt 1 tgatttattcttattcttcttcatataaatgtttaatatacaatataaact 1 tttatattttaaaaatattttttatcaaatattttttaacaatattacaaca	1 aaggggttttccacctaaaaattctggtatcattctactttgttacttt 1 tatcacgcttccgcacacgatatccctacaaatttattattgttaaacatttt 1 ccgtctatctttaatgtagtctaacattttcatattgaaatataaattaaattactt 1 tgatttattcttattcttcttcatataaatgtttaatatacaatataaacaaat 1 tttatattttaaaaatatattttttattcgactgatcttaaagcaacacccagtgac 1 aaatttaactccataatttttttattcgactgatcttaaagcaacacccagtgac 2 aaaaaaaatccaattatcattgtatttttttatacaatgaaaatttcaccaaac 3 gtcatgttatgcaaaattctataattccatttgacactacggaagtaactgaa 4 cttctaaagtaattttaataatagttactatattcaagtttaattgtgaattg 5 gtttaaattgttttatagatagtttaaagtaaatataagttagttgaattgt 6 gtttaaattgttttatagatagtttaaagtaaatataagtagt	1 aaggggttttccacctaaaaattctggtatcattctcactttacttgttactttaatt 1 tatcacgcttccgcacacgatatccctacaaatttattatttgttaaacattttcaaa 1 ccgtctatctttaatgtagtctaacattttcatattgaaatataaattaacttactt	1 aaggggttttccacctaaaaattctggtatcattctcactttacttgttactttaatttccac 1 tatcacgcttccgcacacgatatccctacaaatttattatttgttaaacattttcaaaccgc 1 ccgtctatctttaatgtagtctaacattttcatattgaaatatataatttacttaattttag 1 tgatttattcttattcttctctcatataaatgtttaatatacaatataaacaaattcttaccd 1 tttatattttaaaaaatatatttatcaaatattttcaaccacgtaaatctcataataaaag 1 aaatttaactccataattttttattcaactagtatttttaacaatgaaaatttcaccaaacaacaactagc 1 aaaaaaaattcaattttttattcgactgatcttaaagcaacacccggtgacacaactagc 1 aaaaaaaattcaattttttattatcgactgatcttaaagcaacacccggtgacacaactagc 2 aaaaaaaattcaatttttataatattcccatttgacactacggaagtaactgaagatctgatt 3 cttctaaaagtaatttaataatacttttttaatttaagtttaattgtagatggagagactgact	1 aaggggttttccacctaaaaattctggtatcattctcactttacttgttactttaatttctcataa 1 tatcacgcttccgcacacgatatccctacaaatttattattgttaaacatttcaaaccgcataa 1 ccgtctatctttaatgtagtctaacattttcatattgaaatataaattacttac	1 aaggggttttccacctaaaaattctggtatcattctcactttacttgttactttaatttctcataatctt 1 tatcacgcttccgcacacgatatccctacaaatttattatttgttaaacattttcaaacgcataaaatt 1 ccgtctatctttaatgtagtctaacattttcatattgaaatataatttacttaattttacttaattttaccttaagagag 1 tgatttattcttattcttcttcttcatataaaatgtttaatatacaatataaacaaattctttaccttaagagag 1 tttatattttaaaaaatatatttttcaaaatatttttcaacacagaaaacccagtgacacaactagccattttt 1 aaaaaaaatccaaattttttttattcaaatatttttcaaagaaaattcattaaaaaaatcaattgtggttcaa 2 gtcatgttatgcaaaattcatatatttttttaatccaattgacactacggaagtaactgaagatctgcttttacatg 3 gtcatgttatgcaaaattctataaattcccatttgacactacggaagtaactgaagatctgcttttacatg 4 gtcatgttatgcaaaattctataaatattcccatttgacactacggaagtaactgaagatctgcttttacatg 5 gtcatgttatgcaaaattctataaatattcccattttaagtttaattgtgaatttgtgaatttgtgcactattgatttatta 6 gtcatgttatgcaaaatttaataatattttttaagtttaattgtgaattgtgaagagtgtagaggtgttaccctaa 7 gtcatgatataattaaaatatacttttttaatttaagtttaattgtgtgaatttgtgaatttgtgaatttgtgaatttatta	1 aaggggttttecacctaaaaattetggtateatteteactttacttgttactttaattteteataatetttggt 1 tateaegetteegeacaaggatateeetacaaatttattattgttaaacaattteaattteaatetttagg 1 tegatttattetttattettetteetataaatgtttaatataagaaatataaataa	ttactgtgggttgccatggcactctgtggtcttttggttcatgcatg

FIGURE 15 (CONT'D)

1768					TTC		AAA								ACG	ATA	TTT	ACA	GAG	ACG	1827
72	ь	T	D	K	F	R	K	Q	S	E	R	F	G	T	T	Ι	F	T	E	Т	91
1828		ACG	AAA	GTC	GAT	TTC	TCT	TCG	AAA	CCG	TTT	AAG	CTA	TTC	ACA	GAT	TCA	AAA	GCC	ATT	1887
92	V	T	K	V	D	F	S	S	K	P	F	K	L	F	Т	D	S	K	A	I	111
1888	CTC	GCT	GAC	GCT	GTG	ATT	CTC	GCT	ACT	GGA	GCT	GTG	GCT	AAG	CGG	CTT	AGC	TTC	GTT	GGA	1947
112		A	D	A	V	I	Ŀ	A	T	G	A	V	A	K	R	L	s	F	V	G	131
1948	TCT	GGT	GAA	GGT	TCT	GGA	GGT	TTC	TGG	AAC	ሮርጥ	GGA	Δጥሮ	ጥሮር	GCT	ጥርጥ	GCT	GTT	TGC	GAC	2007
132	S	G	E	G	S	G	G	F	W	N	R	G	I	s	A	C	A	V	C	D	151
2008	CCA	CCM	CCT	aaa	አጠአ	mma	COM	220		~~~	0 	~~~	~~~								
2008 152		A	A	P	I	F	R	N AAC	AAA K	P	CTT L	GCG A	GTG V	ATC	GGT G	GGA G	GGC G	GAT D	TCA S	GCA A	2067 171
2068 172		GAA E	GAA E		AAC N	TTT F	CTT L	ACA T	AAA K	TAT Y	GGA G	TCT S	AAA K	GTG V	TAT Y	ATA I	ATC I	CAT H	AGG		2127
			_		.,	-	L	•	10	1	G	5	K	V	1	_	1	п	R	R	191
2128 1 92		GCT A											GCT			AAT	CCT		ATT	GAT	2187
192	ט	Α	E.	R	A	S	K	Ι	M	Q	Q	R	A	L	S	N	P	K	I	D	211
			TGG	AAC		TCT	GTT	GTG	GAA	GCT	TAT	GGA	GAT	GGA	GAA	AGA	GAT	GTG	CTT	GGA	2247
212	V	I	W	N	S	S	V	V	E	A	Y	G	D	G	E	R	D	V	L	G	231
2248	GGA	TTG	AAA	GTG	AAG	AAT	GTG	GTT	ACC	GGA	GAT	GTT	TCT	GAT	ATT	AAA	GTT	TCT	GGA	TTG	2307
232	G	L	K	V	K	N	V	V	Т	G	D	V	S	D	L	K	V	S	G	L	251
2308	TTC	TTT	GCT	ATT	GGT	CAT	GAG	CCA	GCT	ACC	AAG	TTT	TTG	GAT	GGT	GGT	GTT	GAG	TTA	GAT	2367
252	F	F	A									F			G		V	E	_		271
2368	TCG	GAT	GGT	TAT	GTT	GTC	ACG	AAG	ሮሮ ሞ	ССТ	ልርጥ	ልሮል	CAG	۵ ر∽س	ACC	Cmm	CCC	GGA	GTT	TTC	2427
272									P	G				T		V		G			242 <i>)</i> 291
2428	CCT	ecc	CCT	CAM	~mm	C 3 C	C A M	220	330	m 2 m	200	G3.3	~~~		- ~-						
2428 292																		GGA G			2487 311
2488 312															GGA G			CAA			2547
			,					_	••	-		×	11	<u>.</u>	G	ວ	Q	Q	G :	K :	331
						aagt	atga	acta	aaat	gcat	gtag	gtgt	aaga	gctc	atgg	agago	catg	gaat	attgt	catc :	2624
332	S .	D :	* H:	indI]	Π															33	34
2625	cga	ccat	gtaad	cagta	ataat	aact	gago	tcca	tctc	actt	cttc	tatg	aata	aaca	aagg	atgt	tatg	atat	attaa	acac 2	2704
2705	ተጣት፡	atota	ataa:	a ~ ~ + +	-2++0	r++~+	· = + ~ -	. + =	.++ + ~	10 to 0 to	+~	0 b b -	.	4 1			L	-			
_, _,			Lugue	400 C C	-u - L <u>-</u>	,	acya	icadê	LULUC	.c.ct	.catt	aitā	Laaa	cat	ctga	atcg	cgac	ggct	catgo	gaat 2	2784
2785	gct	tcaaa	atagt	cacaa	aaac	aaat	gtgt	acta	taag	actt	tcta	aaca	attc	taac	ttta	gcat	tgtg	aacg	agaca	ataa 2	2864
2865	gtgl	ttaad	gaaga	acata	acaa	ıttat	aato	gaaq	aadt	ttat	atac	attt	atat	atta	tata	ttad	מתפת:	tta+,	nta++	tata 1	2911
	J - 5 '							, -, -, -, -,					التعايم			~~(''		. , , , , , , ,	۳۰ ت سر ا		4/1/1

FIGURE 15 (CONT'D)

2945	ttaggatgttaaggagacataacaattataaagagagaagtttgtatccatttatatattatataccatttatata	3024
3025	ttatacttatccacttatttaatgtctttataaggtttgatccatgatatttctaatattttagttgatatgtatatgaa	3104
3105	agggtactatttgaactctcttactctgtataaaggttggatcatccttaaagtgggtctatttaattttattgcttctt	3184
3185	acagataaaaaaaaaattatgagtttgataaaatattgaaggatttaaaaataat	3264
3265	atatatgtatataaatttattataatataacatttatctataaaaaa	3344
3345	gccttgctggacgactctcaattatttaaacgagagtaaacatatttgactttttggttatttaacaaattattatttaa	3424
3425	cactatatgaaattttttttttttatcggcaaggaaataaaattaaattaggagggacaatggtgtgtcccaatccttat	3504
3505	acaaccaacttccacaggaaggtcaggtcggggacaacaaaaaaaa	3584
3585	tttgctgcataatttatgcagtaaaacactacacataacccttttagcagtagagcaatggttgaccgtgtgcttagctt	3664
3665	cttttattttatttttttatcagcaaagaataaataaaataaaatgagacacttcagggatgtttcaacccttatacaaa	3744
3745	accccaaaaacaagtttcctagcaccctaccaactaaggtacc	3787
	KpnI	

	F	stI																			
1	ctg	cago	raatt	catt	gtac	ctccc	agta	tcat	tata	agtga	aag	tttt	ggata	ctctc	cgccg	ggtgg	gtttt	ttac	ectet	attta	80
8	1 aa	gggg	gtttt	ccac	ctaa	aaaat	tctg	gtat	catt	ctca	. ct tt	actt	gtta	cttt	aatt	tata	ataa	tctt	tggt	tgaaat	160
16	1 ta	tcac	gctt	ccgc	acac	gata	tccc	taca	aatt	tatt	attt	gtta	.aaca	tttt	caaa	ccgca	ataaa	aatt	ttat	gaagto	240
243	1 cc	gtct	atct	ttaa	tgta	ıgtct	aaca	tttt	cata	ttga	aata	tata	attt	actt	aatt	ttag	cgtt	ggtag	gaaag	gcataa	320
321	l tg	attt	attc	ttat	tctt	cttc	atat	aaat	gttt	aata	taca	atat	aaac	aaat	tatt	tacct	ttaag	gaagg	gatti	tcccat	400
401	l tt	tata	ttt	aaaa	atat.	attt	atca	aata	tttt	tcaa	ccac	gtaa	atct	cata	ataa	taagt	tgtt	tcaa	aaagt	taataa	480
481	l aa	ttta	actc	cata	attt	tttt	attc	gact	gatc	ttaa	agca	acac	ccag	tgaca	acaa	ctago	ccatt	tttt	tctt	tgaat	560
561	L aa	aaaa	atcc	aatt	atca	ttgt	attt	tttt	ta ta	caat	gaaa	attt	cacca	aaaca	aatca	atttg	gtggt	attt	ctga	agcaa	640
641	L gt	catg	ttat	gcaa	aatt	ctat	aatt	cccat	tttg	acac	tacg	gaag	taact	tgaag	gatct	gctt	ttac	atgo	gaga	acacat	720
721	ct	tcta	aagt	aatt	ttaa	taat	agtta	actat	tatt	caag	attt	cata	tatca	aaata	actca	aatat	tact	tcta	aaaa	attaa	800
																				actat	
																				taaac	
961																				tggaa	
1041																				caaag	
1121																					
1201																				gcgtc	
																				acaca	
																				cactt	
1361																				atata	
1441	ata	.ccta	taaa	tacc	tcta	atat	cact	cact	tctt	tcat	cato	cato	catc	caga	gtac	tact	actc	tact	acta	taata	1520
1521 1	ccc	caaco	ccaa	ctcat	atto	caata	ctac	tcta												GAT D	1587 11
1588 12			GGC G	AGA R	GAC D	CAG Q		CCG P	ATG M	ATG M	GGC G	CGA R									1647
						-							D	R	D	Q	Y	Q	М	S	31
1648 32			GGA G		GAC D	TAC Y		AAG K	TCT S	AGG R	CAG Q	ATT I		AAA K	GCT A	GCA A	ACT T	GCT A	GTC V	ACA T	1707 51
1708	GCT	GGT	GGT	TCC	CTC	CTT	GTT	CTC	TCC	AGC	CTT	ACC	CTT	GTT	GGA	ACT	GTC	ATA	GCT	TTG	1767

Title: PREPARATION OF THIOREDOXIN AND THIOREDOXIN REDUCTASE ON OIL BODIES Inventor(s): Maurice M. MOLONEY et al. DOCKET NO.: 034547-0106

FIGURE 16 (CONT'D)

52	A	G	G	S	L	L	Λ	L	S	S	L	T	L	V	G	Т	V	I	A	L	71
1768 72		GTT V	GCA A	ACA T	CCT	CTG L	CTC L	GTT V	ATC I	TTC F	AGC S	CCA	ATC I	CTT L	GTC V	CCG P	GCT A	CTC	ATC	ACA T	1827 91
1828 92		GCA A	CTC L	CTC L	ATC I	ACC T	GGT G	TTT F	CTT L	TCC S	TCT S	GGA G	GGG G	TTT F	GGC G	ATT I	GCC A	GCT A	ATA I	ACC T	1887 111
1888 112		TTC F	TCT S	TGG W	ATT I	TAC Y	AA _!	gtaa	gcac	acat	ttat	catc	ttac	ttca	taat	tttg	tgca	atat	gtgc	atgca	1960 118
1961	tgt:	gttg	agcc	agta	gctt	tgga	tcaa	tttt	tttg	gtcg	aata	acaa	atgt	aaca	ataa	gaaa	ttgc	aaat	tcta	gggaa	2040
2041	cat	ttgg	ttaa	ctaa	atac:	gaaa	tttg	acct	agct	agct	tgaa	tgtg	tctg	tgta	tatc	atct	atat	aggt	aaaa	tgctt	2120
2121 119	ggt	atga	tacc	tatt	gatt:	gtga	atag	G T.					AG C								2184 130
2185 131		GAC D	AGT S	GCA A	AGG R	ATG M	AAG K	TTG L	GGA G	AGC S	AAA K	GCT A	CAG Q	GAT D	CTG L	AAA K	GAC D	AGA R	GCT A	CAG Q	2244 150
2245 151		TAC Y	GGA G	CAG Q	CAA Q	CAT H	ACT T	GGT G	GGG G	GAA E	CAT H	GAC D	CGT R	GAC D	CGT R	ACT T	CGT R	GGT G	GGC G	CAG Q	2304 170
2305 171		ACT T	ACC T	ATG M	AAT N	GGT G	CTC L	GAA E	ACT T	CAC H	AAC N	ACA T	AGG R	CTC L	TGT C	ATC I	GTA V	GGA G	AGT S	GGC G	2364 190
2365 191		GCG A	GCA A	CAC H	ACG T	GCG A	GCG A	ATT I	TAC Y	GCA A	GCT A	AGG R	GCT A	GAA E	CTT L	AAA K	CCT P	CTT L	CTC L	TTC F	2424 210
2425 211		GGA G	TGG W	ATG M	GCT A	AAC N	GAC D	ATC I	GCT A	CCC P	GGT G	GGT G	CAA Q	CTA L	ACA T	ACC T	ACC T	ACC T	GAC D	GTC V	2484 230
2485 231		AAT N	TTC F	CCC P	GGA G	TTT F	CCA P	GAA E	GGT G	ATT I	CTC L	GGA G	GTA V	GAG E	CTC L	ACT T	GAC D	AAA K	TTC F	CGT R	2544 250
2545 251		CAA Q			CGA R	TTC F	GGT G	ACT T	ACG T	ATA I	TTT F	ACA T	gag E	ACG T	GTG V	ACG T	AAA K	GTC V	GAT D	TTC F	2604 270
2605 271			AAA K	CCG P	TTT F		CTA L	TTC F	ACA T	GAT D		AAA K	GCC A	ATT I	CTC L	GCT A	GAC D	GCT A	gtg V	ATT I	266 4 290
2665 291		GCT A															GAA E	GGT G	TCT S	GGA G	2724 310
2725 311																	GCT A	CCG P	ATA I	TTC F	2784 330
2785 331				CCT P													GAA E			TTT F	2844 350

FIGURE 16 (CONT'D)

2845	CTT	ACA	AAA	TAT	GGA	TCT	AAA	GTG	TAT	ATA	ATC	CAT	AGG	AGA	GAT	GCT	TTT	AGA	GCG	TCT	2904
351	L	T	K	Y	G	S	K	V	Y	I	I	Н	R	R	D	A	F	R	A	S	370
2905	AAG	ATT	ATG	CAG	CAG	CGA	GCT	TTG	TCT	AAT	ССТ	AAG	ATT	GAT	GTG	ATT	TGG	AAC	TCG	TCT	2964
371	K	I	M	Q	Q	R	A	L	S	N	P	K	I	D	V	I	M	N	S	S	390
2965	GTT	GTG	GAA	GCT	ТАТ	GGA	GAT	GGA	GAA	AGA	GAT	GTG	CTT	GGA	GGA	TTG	AAA	GTG	AAG	AAT	3024
391	V	V	E	A	Y	G	D	G	E	R	D	V	L	G	G	L	K	V	K	N	410
3025	GTG	GTT	ACC	GGA	GAT	GTT	TCT	GAT	TTA	AAA	GTT	TCT	GGA	TTG	TTC	$\mathbf{T}\mathbf{T}\mathbf{T}$	GCT	ATT	GGT	CAT	3084
411	V	V	\mathbf{T}	G	D	V	S	D	L	K	V	S	G	L	F	F	A	I	G	H	430
3085	GAG		- • -		AAG	TTT	TTG	GAT	GGT	GGT	GTT	GAG	TTA	GAT	TCG	GAT	GGT	TAT	GTT	GTC	3144
431	E	P	A	T	K	F	L	D	G	G	V	E	L	D	S	D	G	Y	V	V	450
	ACG	AAG	CCT		ACT	ACA		ACT				GGA	GTT	TTC	GCT	GCG	GGT	GAT	GTT	CAG	3204
451	Т	K	P	G	Т	Т	Q	Т	S	V	P	G	V	F	A	A	G	D	V	Q	470
	GAT			TAT			GCC					GGA			TGC				TTG	GAT	3264
471	ט	K	K	Y	R	Q	A	Ι	Т	A	A	G	T	G	С	M	A	A	L	D	490
															AGT	GAT	TG <u>A</u>	agct	<u>t</u> aat	aagt	3327
491	A	E	H	Y	L	Q	E	I	G	S	Q	Q	G	K	S	D	* H	IindI	II	5	507
3328	atg	aact	aaaa	tgca	tgta	ggtg	taaga	agcto	catgo	gagag	gcato	rgaat	attg	rtato	cgac	catg	taac	agta	taat	aact	3407
3408	gag	ctcc	atct	cact	tctt	ctate	gaata	aaca	aagg	gatgt	tatg	ratat	atta	acac	tcta	tcta	tgca	cctt	attg	ttct	3487
3488	ato	ataa	attt	cete	ttati	tatt:	ataas	tcat	ctas	2+00	rtaso	acat	tata	~~aa+	~a++	a aaa	+ - ~+			aaat	2567
3568	gtg	tact	ataa	gact [.]	ttcta	aaaca	aatto	taac	ttta	igcat	tgtg	aacg	agac	ataa	gtgt	taag	aaga	cata	acaa	ttat	3647
3648	aat	ggaa	gaag	tttg	tctc	catt	tatat	atta	itata	ttac	ccac	ttat	gtat	tata	ttag	gatg	ttaa	ggag	acata	aaca	3727
3728	att	ataa	agaga	agaag	gttt	gtato	ccatt	tata	tatt	atat	acta	.ccca	.ttta	tata	ttat	actt	atcc	actt	attt.	aatg	3807
2000																					
3808	tct	ttata	aaggi	tttga	atcca	atgat	tattt	ctaa	ıtatt	ttag	ttga	tatg	tata	tgaa	aggg	tact	attt	gaac	tctc	ttac	3887
3888	tct	gtata	aaagg	gttgg	gatca	atcct	taaa	ıgtgģ	gtct	attt	aatt	ttat	tgct	tctt	acag	ataa	aaaa	aaaa	ttato	gagt	3967
3968	tgg	tttga	ataaa	aatat	tgaa	aggat	ttaa	aata	ataa	taaa	taat	aaat	aaca	tata	atat	atgta	atata	aaati	ttatt	tata	4047
4048	atai	taaca	attta	atota	ataaa	aaac	rtaaa	tatt	atca	+aaa	tota	tace	atoo	+++=	aca+:	taat	7(7 2 2 7	72 7 +	n+a	atta	A107
4128	ttta	aaac	gagag	gtaaa	acata	atttg	gactt	tttg	gtta	ttta	acaa	atta	ttat	ttaa	cact	atat	gaaat	tttt	tttt	ttt	4207
4208	atc	ggcaa	aggaa	aataa	aaatt	aaat	tagg	aggg	acaa	tggt	gtgt	ccca	atcc	ttat	acaa	ccaa	cttco	cacag	ggaag	ggtc	4287

FIGURE 16 (CONT'D)

4288	aggtcggggacaacaaaaaaacaggcaagggaaattttttaatttgggttgtcttgtttgctgcataatttatgcagtaa	4367
4368	aacactacacataacccttttagcagtagagcaatggttgaccgtgtgcttagcttctttttttt	4447
4448	aaagaataaataaaataaaatgagacacttcagggatgtttcaacccttatacaaaaccccaaaaacaagtttcctagca	4527
4528	ccctaccaactaaggtacc	4546
	KonT	

FIGURE 17

PstI

1	ctgc	<u>aq</u> ga	atto	attg	tact	ccca	gtat	catt	atag	rtgaa	agtt	ttgg	rctct	ctcg	ccgg	tggt	tttt	taco	tcta	ttta	80
81	aag	gggt	tttc	cacc	taaa	aatt	ctgg	tatc	attc	tcac	ttta	.cttg	ttaci	tttaa	attt	ctcat	taato	ctttç	ggttg	gaaat	160
161	tat	cacg	cttc	cgca	.cacg	atat	ccct	acaa	attt	atta	tttg	ttaa	acati	tttca	aaaco	cgcat	taaaa	attt	tatga	aagtc	240
241	ccg	tcta	ıtctt	taat	gtag	tcta	acat	tttc	atat	tgaa	atat	ataa	tttad	cttaa	attt	tage	gttg	gtaga	aaago	cataa	320
321	tga	ttte	ttct	tatt	cttc	ttca	tata	aatg	ttta	atat	acaa	tata	aacaa	aatto	ettta	acct	taaga	aagga	attto	cccat	400
401	ttt	atat	ttta	ıaaaa	tata	ttta	tcaa	atat	tttt	caac	cacg	taaa	tctca	ataat	taata	aagtt	tgtt	tcaaa	aagta	aataa	480
481	aat	ttaa	ctcc	ataa	tttt	ttta	ttcg	actg	atct	taaa	.gcaa	cacc	cagt	gacad	caact	tagco	catt	tttt	cttt	gaat	560
561	aaa	aaaa	tcca	atta	tcat	tgta	tttt	tttt	atac	aatg	aaaa	tttc	accaa	aacaa	atcat	tttgt	tggta	attt	ctgaa	agcaa	640
641	gtc	atgt	tatg	rcaaa	attc	tata	attc	ccat	ttga	cact	acgg	aagt	aact	gaaga	atcto	gcttt	ttaca	atgc	gagad	cacat	720
721	ctt	ctaa	agta	attt	taat	aata	gtta	ctat	attc	aaga	tttc	atat	atca	aatao	ctcaa	atat	tact	tctaa	aaaa	attaa	800
801	tta	gata	taat	taaa	atat	tact	tttt	taat	ttta	agtt	taat	tgtt	gaati	ttgtg	gacta	attga	attta	attai	ttcta	actat	880
881	gtt	taaa	ttgt	ttta	taga	tagt	ttaa	agta	aata	taag	taat	gtag	tagaç	gtgti	tagag	gtgt	tacco	ctaaa	accat	taaac	960
961	tat	aaga	ttta	tggt	ggac	taat	tttc	atat	attt	ctta	ittgo	tttt	accti	tttc	ttgg	tatg	taag	teegt	taact	ggaa	1040
1041	tta	ctgt	gggt	tgcc	atgg	cact	ctgt	ggtc	tttt	ggtt	catg	catg	gatgo	cttgo	cgcaa	agaaa	aaaga	acaaa	agaad	caaag	1120
1121	aaa	aaa g	acaa	aaca	gaga	gaca	aaac	gcaa	tcac	acaa	.ccaa	ctca	aatta	agtca	actg	gctga	atca	agato	cgccg	gcgtc	1200
1201	cat	gtat	gtct	aaat	gcca	tgca	aagc	aaca	cgtg	ctta	.acat	gcac	tttaa	aatgg	getea	accca	atct	caaco	ccaca	acaca	1280
1281	aac	acat	tgcc	tttt	tctt	catc	atca	ccac	aacc	acct	gtat	atat	tcati	tctct	ttcc	gccad	cctca	aatti	tette	cactt	1360
1361	caa	caca	cgtc	aacc	tgca	tatg	cgtg	tcat	ccca	tgcc	caaa	tctc	catgo	catg	ttcca	aacca	acct	tctct	tctta	atata	1440
1441	ata	ccta	taaa	tacc	tcta	atat	cact	cact	tctt	tcat	cato	catc	catco	cagag	gtact	tacta	actc	tacta	actat	taata	1520
1521 1	cccc	aaco	ccaac	ctcat	atto	aata	ctac.	tcta					TC G							CTC L	1587 11
1588	TGT	ATC	GTA	GGA	AGT	GGC		GCG	GCA			GCG		ATT							1647
12		I	V	G	S	G	P	A	A	Н	T	A	A	I	Y	Α	A	R	A	E	31
1648 32						TTC F	GAA E			ATG M	GCT A	AAC N	GAC D	ATC I	GCT A	CCC P	GGT G	GGT G	CAA Q	CTA L	1707 51
1708 52		ACC T	ACC T	ACC T	GAC D	GTC V	GAG E	AAT N	TTC F	CCC P	GGA G	TTT F	CCA P	GAA E	GGT G	ATT I	CTC L	GGA G	GTA V	GAG E	1767 71
	-	-	_	_	_	-			_	-	-			-	-						

FIGURE 17 (CONT'D)

1768	CTC	ACT	GAC	AAA	TTC	CGT	AAA	CAA	TCG	GAG	CGA	TTC	GGT	ACT	ACG	ATA	TTT	ACA	GAG	ACG	1827
72	L	Т	D	K	F	R	K	Q	S	E	R	F	G	T	T	I	F	T	E	T	91
1828	GTG	ACG	AAA	GTC	GAT	TTC	TCT	TCG	AAA	CCG	TTT	AAG	CTA	TTC	ACA	GAT	TCA	AAA	GCC	ATT	1887
92	V	T	K	V	D	F	S	S	K	P	F	K	L	F	T	D	S	K	A	I	111
1888	CTC	GCT	GAC	GCT	GTG	ATT	CTC	GCT	ACT	GGA	GCT	GTG	GCT	AAG	CGG	CTT	AGC	TTC	GTT	GGA	1947
112	L	A	D	A	V	I	L	Α	Т	G	A	V	A	K	R	L	S	F	V	G	131
1948				GGT	TCT	GGA	GGT	TTC	TGG	AAC	CGT	GGA	ATC	TCC	GCT	TGT	GCT	GTT	TGC	GAC	2007
132	S	G	E	G	S	G	G	F	W	N	R	G	I	S	A	С	A	V	С	D	151
2008		GCT	GCT	CCG	ATA	TTC	CGT	AAC	AAA	CCT	CTT	GCG	GTG	ATC	GGT	GGA	GGC	GAT	TCA	GCA	2067
152	G	A	A	P	Ι	F	R	N	K	P	L	A	V	I	G	G	G	D	S	A	171
2068				GCA	AAC	$\mathbf{T}\mathbf{T}\mathbf{T}$	CTT	ACA	AAA	TAT	GGA	TCT	AAA	GTG	TAT	ATA	ATC	CAT	AGG	AGA	2127
172	M	E	Е	A	N	F	L	Т	K	Y	G	S	K	V	Y	Ι	Ι	Н	R	R	191
2128									ATG				GCT	TTG	TCT	AAT	CCT	AAG	ATT	GAT	2187
192	D	A	F	R	A	S	K	I	M	Q	Q	R	A	L	S	N	P	K	I	D	211
2188				AAC				GTG			TAT	GGA	GAT	GGA	GAA	AGA	GAT	GTG	CTT	GGA	2247
212		I	W	N	S	S	V	V	E	A	Y	G	D	G	E	R	D	V	L	G	231
2248												GTT	TCT	GAT	TTA	AAA	GTT	TCT	GGA	TTG	2307
232			K	V		N	V	V	Т	G	D	V	S	D	L	K	V	S	G	L	251
2308		TTT	GCT	ATT					GCT					GAT					TTA		2367
252			Α	Ι		H	E	P	Α	Т	K	F	L	D	G	G	V	E	L	D	271
2368 2 7 2			GGT						CCT									GGA		TTC	2427
		D	G	Y	V	V	Т	K	P	G	Т	T	Q	Т	s	V	P	G	V	F	291
2428 292				GAT																GGG	2487
292	A	A	G	D	V	Q	D	K	K	Y	R	Q	Α	Ι	Т	Α	A	G	Т	G	311
2488														ATT	GGA	TCT	CAG	CAA	GGT	AAG	2547
312				Α			A	Ε				Q	E		G	S		Q		K	331
	AGT																				2607
332							A	R					D		Ι	G		D	Q	Y	351
2608																				TCC	2667
352		M			R			D					S							S	371
2668																					2727
372	1/	S	v	Q	Τ.	A	V	A	A	T	A	V	.I.	A	G	G	S	L	۲ı	V	391

FIGURE 17 (CONT'D)

2728 392	CTC L	TCC S	AGC S	CTT L	ACC T	CTT L	GTT V	GGA G	ACT T	GTC V	ATA I	GCT A	TTG L	ACT T	GTT V	GCA A	ACA T	CCT P	CTG L	CTC L	2787 411
2788		ATC	TTC	AGC	CCA	ATC	CTT	GTC	CCG	GCT	СТС	ATC	ACA	GTT	GCA	CTC	CTC	ATC	ACC	GGT	2847
412	V	I	F	S	P	I	L	V	P	A	L	I	T	V	A	L	L	I	Т	G	431
2848		CTT	TCC							GCC					TTC		TGG	ATT		AA g	2907
432	F	L	S	S	G	G	F	G	I	A	A	Ι	Т	V	F	s	W	I	Y	K	451
2908	taag	gcaca	acatt	ttato	catct	tact	tcat	aatt	ttgt	gcaa	ıtatg	rtgca	tgca	tgtg	rttga	gcca	gtag	rcttt	ggat	caat	2987
2988	ttti	tttgg	gtcga	aataa	acaaa	atgta	aacaa	taag	gaaat	tgca	aaatt	ctag	gggaa	acatt	tggt	taad	ctaaa	ataco	gaaat	ttga	3067
3068	ccta	agcta	agcti	tgaat	tgtgt	ctgt	gtat	atca	atcta	atata	aggtá	aaaat	gctt	ggta	atgat	acct	tattg	gattg	gtgaa	atag	3146
3147	G T	AC GO	CA A	CG G	GA G	AG C	AC CC	CA CA	GG	SA TO	CA GA	AC AA	AG TI	G GA	AC AG	T GO	CA AG	G AI	G AA	'G	3204
452	Y	Α	\mathbf{T}	G	E	H	P	Q	G	S	D	K	L	D	S	A	R	M	K		4 70
3205	TTG	GGA	AGC	AAA	GCT	CAG	GAT	CTG	AAA	GAC	AGA	GCT	CAG	TAC	TAC	GGA	CAG	CAA	CAT	ACT	3264
471	L	G	S	K	A	Q	D	L	K	D	R	A	Q	Y	Y	G	Q	Q	Н	T	490
3265	GGT	GGG	GAA	CAT	GAC	CGT	GAC	CGT	ACT	CGT	GGT	GGC	CAG	CAC	ACT	ACT	T <u>AA</u>	gctt	<u>a</u> ata	agta	3327
491	G	G	E	Н	D	R	D	R	Т	R	G	G	Q	Н	T	T	*	Hino	IIIE		507
3328	tga	acta	aaat	gcat	gtag	gtgt	aaga	gctc	atgg	agag	catg	gaata	attgt	tatco	cgaco	catgt	caaca	agtat	aata	actg	3407
3408	ago	tcca	tctc	actt	cttc	tatg	aata	aaca	aagg	atgti	tatga	atata	attaa	acact	ctat	ctat	gcac	cctta	ttgt	tcta	3487
3488	tga	ıtaaa	tttc	ctct	tatt	atta	taaa	tcat	ctga	atcg	tgac	ggctt	tatgg	gaato	gctto	caaat	agta	acaaa	aaca	aatg	3567
3568	tgt	acta	taag	actt	tcta	aaca	attc	taac	ttta	gcat	tgtga	aacga	agaca	ataaç	gtgtt	aaga	agac	cataa	caat	tata	3647
3648	atg	rgaag	aagt	ttgt	ctcc	attt	atat	atta	tata	ttac	ccact	tato	gtatt	tatat	tagg	gatgt	taag	gaga	cata	acaa	3727
3728	tta	taaa	gaga	ıgaag	tttg	tatc	catt	tata	tatt	atata	actad	cccat	ttat	tatat	tata	actta	atcca	actta	ıttta	atgt	3807
3808	ctt	tata	aggt	ttga	tcca	tgat	attt	ctaa	tatt	ttag	ttgat	tatgt	tatat	gaaa	agggt	acta	atttg	gaact	ctct	tact	3887
3888	ctg	tata	.aagg	ttgg	atca	tcct	taaa	gtgg	gtct	attta	aattt	tatt	gctt	ctta	acaga	itaaa	aaaa	aaat	tatg	agtt	3967
3968	ggt	ttga	taaa	atat	tgaa	ggat	ttaa	aata	ataa	taaa1	taata	aaata	acat	tataa	atata	atgta	tata	aatt	tatt	ataa	4047
4048	tat	aaca	ttta	tcta	taaa	aaag	taaa	tatt	gtcat	taaal	tctat	cacaa	atcgt	ttag	gaatt	gctg	gacg	gacto	tcaa	ttat	4127
4128	tta	aacg	agag	taaa	.cata	tttg	actt	tttg	gtta	tttaa	acaaa	attat	tatt	taac	cacta	itato	gaaat	tttt	tttt	ttta	4207
4208	tcg	gcaa	.ggaa	ataa.	.aatt	aaat	tagg	aggg	acaa	tggt	gtgto	ccaa	atcct	tata	acaac	caac	ttcc	acag	gaag	gtca	4287

FIGURE 17 (CONT'D)

4288	ggtcggggacaacaaaaaaacaggcaagggaaattttttaatttgggttgtcttgtttgctgcataatttatgcagtaaa	4367
4368	acactacacataacccttttagcagtagagcaatggttgaccgtgtgcttagcttctttttttatttttttatcagca	4447
4448	aagaataaataaaataaaatgagacacttcagggatgtttcaacccttatacaaaaccccaaaaacaagtttcctagcac	4527
528	cctaccaactaaggtacc	4545
	77 · · ·	

KpnI

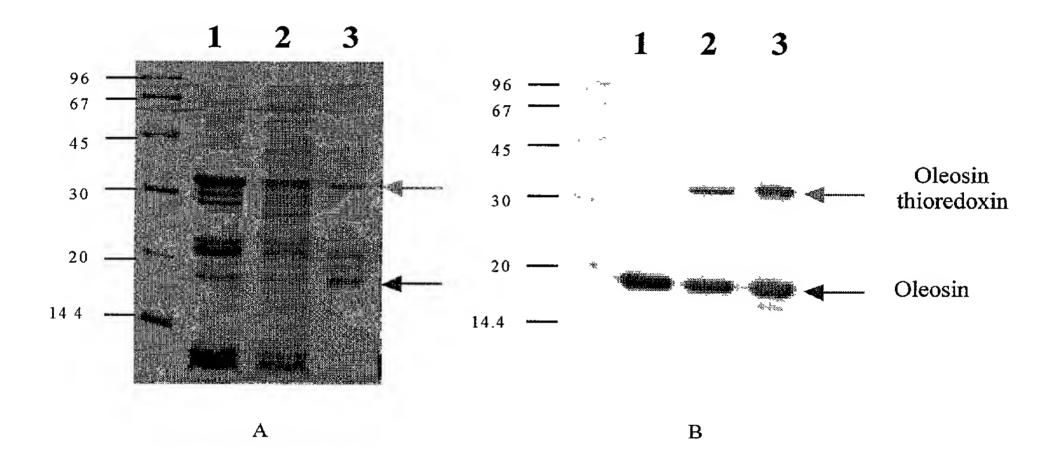
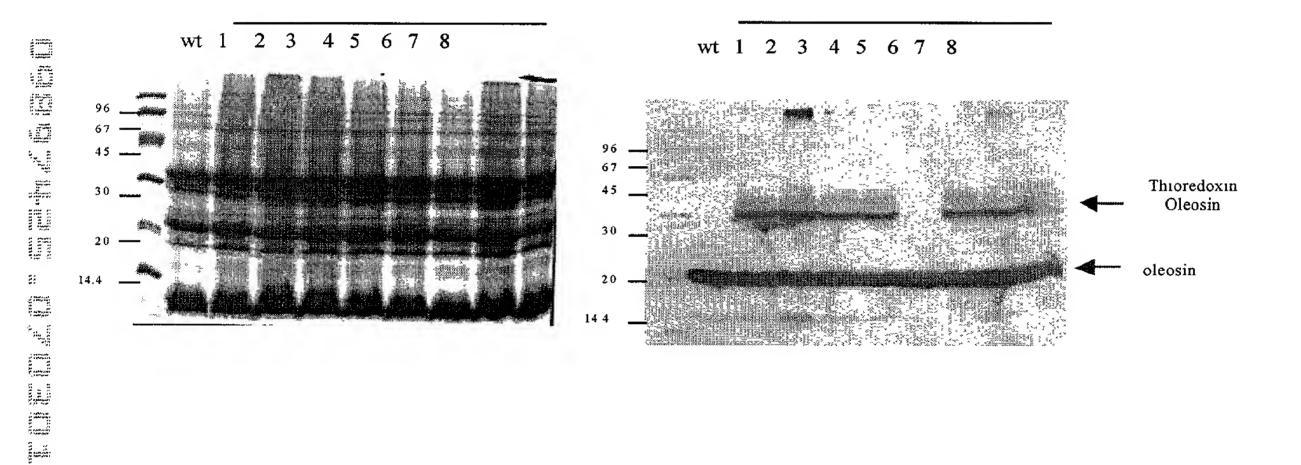


FIGURE 19

PSBS2521 transformants

PSBS2521 transformants



A

B

FIGURE 20

pSBS2520 transformants

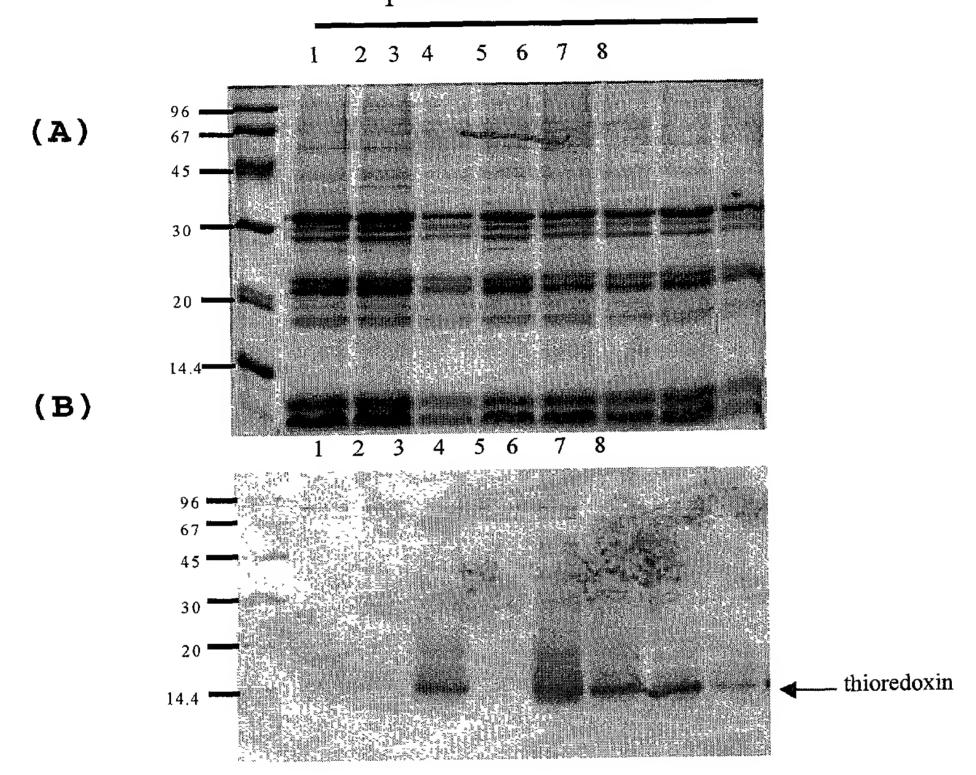
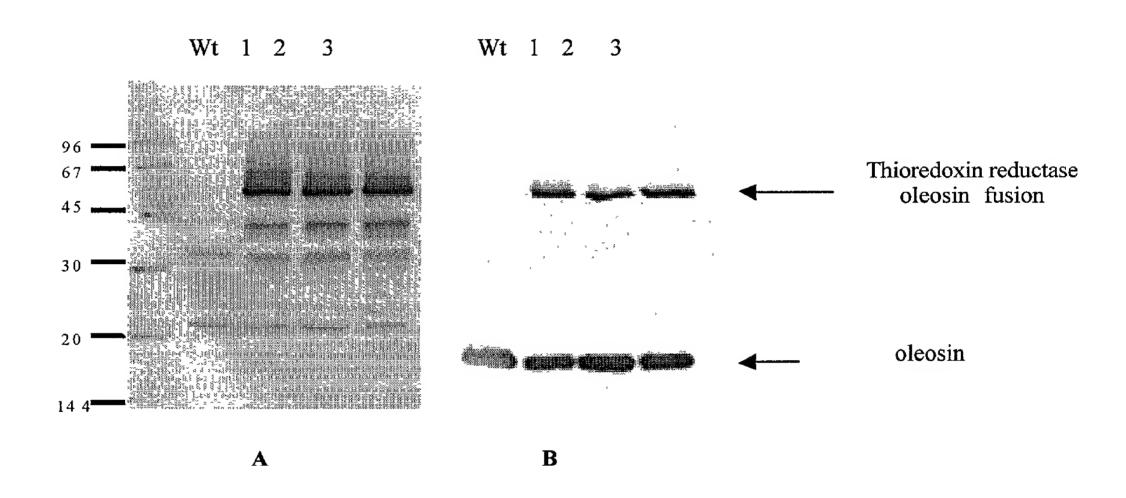


FIGURE 21



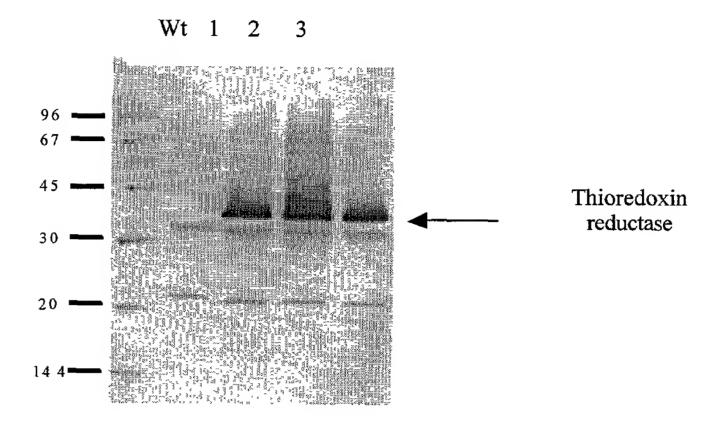


FIGURE 23

